

# EXHIBIT 40



# Westlaw® Edge

The standard for legal research.



THOMSON REUTERS®



## Gain the edge

With advanced artificial intelligence powered by more than 100 years of attorney-edited annotations, Westlaw® Edge elevates your legal research experience so you can work, think, and deliver even faster. It builds on the premium content and performance the legal industry has come to expect from Thomson Reuters®, and defined a new standard for thorough and quality research.

[WestlawEdge.com](https://WestlawEdge.com)

# Compare Westlaw Edge to Westlaw Classic

## See the difference

Discover the AI-powered tools that set Westlaw Edge apart from Westlaw Classic.

	Westlaw Classic	Westlaw Edge
<b>Quick Check</b> Intelligent document analysis to find highly relevant authority that traditional research may have missed		●
<b>Litigation Analytics</b> Data-driven insights on judges, courts, attorneys, law firms, and case types		●
<b>KeyCite® Overruling Risk</b> Citator warning that cautions you when a point of law has been implicitly undermined		●
<b>WestSearch® Plus</b> Next-generation search engine that offers predictive research suggestions and delivers the most relevant information for your legal issue		●
<b>Statutes Compare and Regulations Compare</b> Comparison tool that shows how any two statutes or regulations have changed over time		●
<b>Jurisdictional Surveys</b> Customizable compilation of laws across all U.S. jurisdictions		●
<b>Primary Law</b> Foundational resources, including cases, statutes, regulations, legislative materials, and more to gain an understanding of your legal issue	●	●
<b>Secondary Sources</b> Premier analytical titles to get up to speed in new areas of the law or revisit familiar ones	●	●
<b>Litigation Materials</b> Fully integrated briefs, pleadings, motions, memoranda, and dockets	●	●
<b>KeyCite</b> Industry's most complete and accurate citator to ensure you rely on good law	●	●
<b>Key Number System</b> Most comprehensive and widely used indexing system for caselaw	●	●
<b>Headnotes</b> Concise summaries of the points of law discussed in a case	●	●



*“Part of putting our clients first is to be as efficient as possible in our research, to keep bills down, and to make sure that we’re getting the most comprehensive research. Westlaw Edge allows us to do that.”*

**Jeunesse Rutledge**

Associate, Reinhart Boerner Van Deuren s.c.

# Discover a new level of confidence with Quick Check

Upload your brief to find highly relevant authority and ensure you haven't missed anything important.

## Intelligent document analysis

Upload a brief to Quick Check and receive a comprehensive report detailing not only the validity of the cited authority, but also recommendations for additional relevant authority as well as an analysis of quotations.

## Enabling more efficient research

- Perform a final check on a completed document
- Refresh a previously used document with new authority
- Prioritize your review of an opponent's cited authority with the ability to see which cases they spent the most time discussing
- Compare your opponent's filings against your own
- Jumpstart your research by submitting a selection of text, a brief, or a trial court filing found on Westlaw Edge directly to Quick Check
- Compare multiple filings from a single matter

## Advantages you won't find elsewhere

- Uncover recommendations of authority contrary to an opponent's arguments
- Filter out citations you've viewed in the past 30 days and what you've already saved to a folder
- See additional details for why a suggested authority might be important
- View a side-by-side comparison of cited quotations and the actual case language on Westlaw Edge, along with crucial context from the case

## Complete your research with confidence

The screenshot shows the Quick Check interface on the Thomson Reuters Westlaw Edge platform. The top navigation bar includes links for History, Folders, Favorites, Community, Notifications, and Sign out. The main heading is "Quick Check" with the subtext: "Cutting-edge AI combined with Westlaw's editorial excellence delivers relevant authority traditional research might miss." Below this, a central callout asks, "What would you like to do today?" with three main options: "Check your work", "Analyze an opponent's work", and "Quick Check Judicial". Each option has a list of sub-tasks and a corresponding blue button. A note at the bottom states: "The security and privacy of your data is important to us. We employ multiple layers of security to keep it safe." To the right of the main content, a separate callout box contains the text: "Simply and securely upload your brief".

# Get to the information you need faster with WestSearch Plus

Find authoritative legal answers even faster with state-of-the-art AI powered by attorney-edited annotations.

## Focus your research with predictive typeahead

With the next generation of legal search, get superior predictive research suggestions as you start to type your query in the global search bar. Related suggestions appear based on AI-enhanced technology to help you find authoritative answers in less time.

## Find answers faster for thousands of legal topics

Address legal questions for thousands of topics without drilling into the results list. Pick the most relevant query served up with predictive typeahead and the most relevant text appears at the top of your results list.

## Advantages you won't find elsewhere

- Arrive at answers quickly with state-of-the-art AI powered by attorney-edited annotations
- See the most relevant portion of the text right after you select your question, without needing to review the full document or results list
- Connect quickly to the relevant underlying authority

## The most powerful legal search engine ever

The screenshot shows the Thomson Reuters Westlaw Edge web interface. At the top, there's a search bar with the placeholder "SAMPLE". Below it, a dropdown menu shows "All State & Federal". To the right is a magnifying glass icon. The main content area has a blue header "WESTLAW EDGE". A search bar contains the query "fraudulent conveyance". To the left of the search bar is a sidebar with categories: Suggestions (highlighted), Cases, Statutes & Court Rules (numbered 2), Regulations, Secondary Sources, and Other. Below the sidebar are four numbered callouts: 1. A suggestion about punitive damages for a transfer claim. 2. A suggestion about transferring necessary parties in a conveyance action. 3. A suggestion about transfers under the Uniform Fraudulent Transfer Act. 4. A section titled "Search Suggestions" with several sub-suggestions related to key numbers for bankruptcy, transfers, and criminal offenses. At the bottom of the interface, there are links for "Administrative Decisions & Guidance", "Proposed & Enacted Legislation", "Arbitration Materials", and "Trial Court Documents".

**1** Enter your legal query in the global search bar

**2** Filter results by selecting a specific content type

**3** Select a relevant question to retrieve the right text

**4** Get Search Suggestions narrowed by Key Numbers

Experience Westlaw Edge at [WestlawEdge.com](https://WestlawEdge.com)

# Make more informed decisions with Litigation Analytics

Build the strongest case strategy and manage client expectations with insights on judges, courts, attorneys, law firms, and case types.

## Put Litigation Analytics to work for you

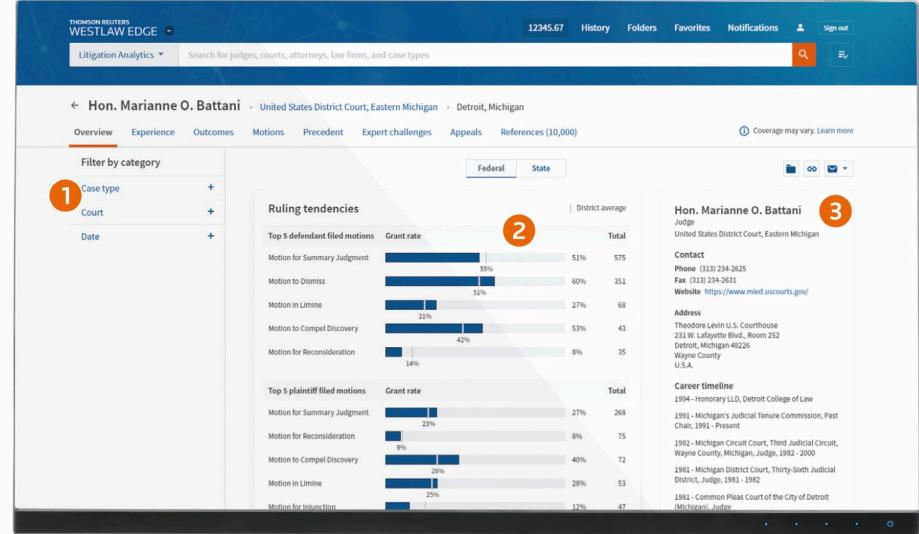
- Craft the best strategy, and set and manage expectations for outcomes, timelines, and costs
- Understand a judge's history with expert testimony
- Evaluate opposing counsel's experience
- Assess and value litigation with Damages analytics

## Precedent Analytics

Make stronger arguments. Quickly uncover key insights into a judge based on topics, the cases a judge regularly relies on, and other judges they frequently cite.

## Advantages you won't find elsewhere

- Leverage the most state and federal dockets across the most case types
- Filter by many categories, including 28 motion types and "search within"
- Search dockets, as well as trial documents, for arguments, issues, and fact patterns



**Sharpen your advantage with superior insights**

The screenshot shows a judge profile for Hon. Marianne O. Battani. At the top, there are tabs for Overview, Experience, Outcomes, Motions, Precedent, Expert challenges, Appeals, and References (10,000). The Overview tab is selected. Below the tabs, there are three sections: 'Ruling tendencies' (with charts for defendant and plaintiff motions), 'Judge information shown' (with contact details like phone and fax numbers), and 'Career timeline' (listing past positions and education).

**1** Filter by case type, court, and date

**2** Understand how your judge's ruling tendencies compare to the district average

**3** View judge's career timeline, past positions, education, and relevant biographical information

Judge information shown.  
Similar insights available for courts, attorneys, law firms, and case types.

# Trust that you're citing good law with KeyCite Overruling Risk

Know when a point of law in your case has been implicitly undermined based on its reliance on an overruled or otherwise invalid prior decision.

## Get warnings on implicitly overruled cases

- Use term navigation to easily pinpoint the language within a case that has been overruled
- Avoid the need to review each case manually to determine if it cites an implicitly overruled point of law

## Advantages you won't find elsewhere

- See an orange warning icon right from the results list and at the top of your document, just like red and yellow warning flags, integrated into your research flow
- Leverage state-of-the-art AI to identify bad law that has no direct citations pointing to its validity

**Know whether your legal authority has been implicitly undermined**

THOMSON REUTERS  
WESTLAW EDGE

All content childress v heckler

Content types Set default

- Overview 14
- Cases 41
- Statutes 42
- Secondary Sources 97
- Practical Law 0
- Regulations 50

Show more

Filter

Select multiple

Filter category Cases

1. Childress v. Heckler

United States District Court, E.D. Louisiana. - August 20, 1985 - 616 F.Supp. 563 - 11 Soc.Sec.Rep.Serv. 480

Social security disability claimant moved for an award of attorney fees under the Equal Access to Justice Act. The court denied the motion, but the District Court, Arceneaux, J., held that a final judgment need not be entered if attorney fees may be awarded, as a social security claimant who has been awarded benefits at the agency level is...  
Show synopsis

... Clifton v. Heckler, 755 F.2d 1138, 1142 (5th Cir.1985)....  
... On remand the District Court awarded fees, Guthrie v. Heckler, 587 F.Supp. 1471 (M.D.N.C.1984)....  
... Childress v. Heckler...  
... Harold CHILDRESS...

2. Heckler v. Ringer

Supreme Court of the United States - May 14, 1984 - 466 U.S. 602 - 104 S.Ct. 2013

Three persons who had been denied, at some, but not all, administrative levels, medicaid reimbursement for prescription drugs and one person who had declined the agency because he could not afford to pay the co-payment were denied their claim for benefits. The court held that the agency's interpretation of the statute was reasonable and upheld the denial of benefits.

Be aware with an Overruling Risk orange warning icon right from the result list

Experience Westlaw Edge at [WestlawEdge.com](#)

# Stay informed of changes in the law with Statutes Compare and Regulations Compare

Easily identify the most recent changes to a statute or regulation — or compare any two versions.

## Compare versions easily

- Save time by eliminating the need to go through session laws and register sections to see how a statute or regulation has changed
- See quickly what language changed from one statute or regulation version to another
- Access the most recent changes to a statute or regulation easily from the document, or compare any two versions right from the History tab

## Advantages you won't find elsewhere

- Get coverage for all statutory content and federal regulations, plus state regulations in select states
- Toggle to the next and previous difference
- Download, print, or email the comparison

**See the current version compared to a previous version**

The screenshot shows a comparison window titled "Compare versions" with the following details:

- Showing amendments between versions effective December 22, 2017 to March 22, 2018 and March 23, 2018 (current)
- 6 deletions - 8 additions | Key: deleted text | added text
- Elementary education or secondary education (kindergarten through grade 12):
- (iii) Certification by donee—Subparagraph (A) shall not apply to any contribution of books unless (in addition to the certifications required by subparagraph (A) (as modified by this subparagraph)), the donee certifies in writing that—
  - (I) the books are suitable, in terms of currency, content, and quantity, for use in the donee's educational programs; and
  - (II) the donee will use the books in its educational programs;
- (iv) Termination—This subparagraph shall not apply to contributions made after December 31, 2011.
- (E) Redesignated (D)
- (4) Special rule for contributions of scientific property used for research.—
  - (A) Limit on reduction.—In the case of a qualified research contribution, the reduction under paragraph (1)(A) shall be no greater than the amount determined under paragraph

Below the comparison window, the text "26 U.S.C.A. § 170, I.R.C. § 170" and "§ 170. Charitable, etc., contributions and gifts" is visible, along with a "Currentness" button.

*See the text that was deleted from the latest version in red strike-throughs and text that was added to the latest version in blue highlights*

# Expedite the creation of accurate surveys with Jurisdictional Surveys

Quickly retrieve a customized and relevant compilation of laws across all U.S. jurisdictions on virtually any topic.

## Get a jump-start on your research

- Simply start with the citation of a statute you know, Index terms that describe your topical target, or from a predefined topic page
- Get a curated list of statutory sections that accounts for varying terminology across all jurisdictions
- Refine the list of statutory sections by adding or excluding terms, and filtering down to the jurisdictions of interest

## Advantages you won't find elsewhere

- Exclusive editorially applied Index taxonomy that accounts for variances in terminology across jurisdictions
- Index-based search approach optimized for the task of searching statutes by topic or sub-topic across jurisdictions

## Save time getting up to speed on laws across jurisdictions

The screenshot displays the Westlaw Edge platform's Jurisdictional Surveys feature. At the top, a navigation bar includes links for SAMPLE, History, Folders, Favorites, Community, Notifications, and Sign out. Below the header, a title reads "Survey report for 'Driving Under Influence Of Alcohol Or Drugs' AND 'Fines And Penalties'". On the left, a sidebar titled "Related terms" lists categories like "Driving Under Influence Of Alcohol Or Drugs" (with sub-options for "Include all (13)", "Deficiencies (108)", etc.), "Fines And Penalties" (with sub-options for "Include all (6)", "Discipline (8)", etc.), and "Penalties (25)". The main content area features a map of the United States where each state and the Federal government are highlighted in blue, indicating the presence of relevant statutory sections. A legend at the bottom right of the map identifies "Federal" with a blue square icon. To the right of the map, a table titled "Survey Results (590)" shows the number of results for various states and the Federal government. The table includes columns for "Top" and "Results", with data rows for Nevada (32), California (31), North Carolina (27), Illinois (26), and Florida (21). A callout text below the table reads: "Tailor your list of statutory sections by adding or excluding terms, and filtering by jurisdiction".



*"Get Westlaw Edge and don't hesitate. It is absolutely worth it. It'll make you a better attorney. It'll make your firm better. And you'll serve your clients better than you have before."*

**Steven Smelser**

Partner, Yukevich | Cavanaugh



Experience Westlaw Edge at [WestlawEdge.com](https://WestlawEdge.com)

# EXHIBIT 41



# Westlaw Edge

Deliver answers quickly and gain valuable insights with a full suite of AI-powered tools on Westlaw® Edge.

## Quick Check

### Intelligent document analysis

Upload your brief and in just minutes, Quick Check will identify the legal issues and show you relevant authority that traditional research may have missed. Rely on Quick Check to quality check a final draft, verify cited quotations, reveal weaknesses in an opponent's document, refresh a past winning argument, and more.

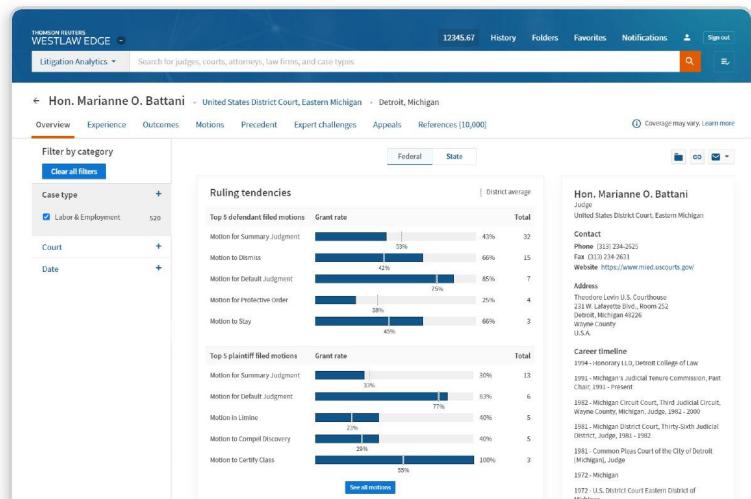
- Compare multiple filings from a single matter with Quick Check Judicial
- KeyCite® provides the information you need to verify the cases you cite are still good law
- Filter out what you've already viewed or saved to a folder

## Litigation Analytics

### Data-driven insights

Discover a new level of insight with analysis on judges, courts, damages, attorneys, law firms, and case types across the most state and federal dockets. Easily gather relevant information to build the strongest case strategy and respond to clients even faster with the initial case context around likely outcome, timeline, and cost.

- See how a judge typically rules, subject matter expertise, time to rule, and more
- Manage client expectations for likely outcomes, timelines, and cost
- Build a winning strategy with example motions a judge has granted



The screenshot shows the Westlaw Edge interface with a search bar at the top containing 'employment discrimination'. Below the search bar, there are several sections: 'Suggestions' (including 'employment discrimination a tort?', 'Is employment discrimination a tort?', 'All State & Federal'), 'Cases' (listing 'employment discrimination cases?', 'All State & Federal'), 'Regulations' (listing 'What constitutes an adverse action under a First Amendment employment discrimination claim?', 'All State & Federal'), 'Secondary Sources' (listing 'Cases with the Key Number for civil rights/ employment practices/ age discrimination/ education, employment in...', 'Cases with the Key Number for civil rights/ employment practices/ age discrimination/ public employment...', 'Cases with the Key Number for civil rights/ employment practices/ age discrimination/ discrimination against the young; reverse discrimination...', 'Cases with the Key Number for civil rights/ employment practices/ religious discrimination/ accommodations...', 'Cases with the Key Number for civil rights/ employment practices/ age discrimination/ particular cases...'), 'Content Pages' (listing 'Employment Discrimination Coordinator'), and a sidebar with links to 'Business Law Center', 'Dockets', 'Litigation Analytics', 'Sample Agreements', 'Capitol Watch', 'General Counsel Resources', 'Legislative History', 'Trial Transcripts & Oral Arguments', 'Company Investigator', and 'Intellectual Property', 'News'.

## WestSearch® Plus

### Next generation legal search

Get better predictive research suggestions across thousands of legal topics so you can find authoritative answers even faster. Predictive typeahead leverages advanced AI technology to surface relevant queries in the global search box. When you select a suggested query, you'll go to the most relevant text without needing to scan the entire results list.

- Take advantage of the most powerful legal search engine, designed by attorneys for attorneys
- Get suggested answers quickly for thousands of legal topics
- Connect directly to the relevant underlying authority

## KeyCite Overruling Risk

### Advanced citator

Trust you're citing good law. KeyCite Overruling Risk cautions you when a point of law in your case has been implicitly undermined based on its reliance on an overruled or otherwise invalid prior decision.

- Get warnings on implicitly overruled points of law
- See an orange warning icon, similar to red and yellow flags, integrated into your research
- Use term navigation to easily pinpoint the language within a case that has been overruled
- Avoid reviewing each case manually to determine whether it cites an implicitly overruled point of law

The screenshot shows the KeyCite Overruling Risk feature for the case 'Childress v. Heckler'. The page includes the case title, court, date, and a brief summary. It highlights an 'Overruling risk' section which states: 'Plaintiff seeks attorney's fees attributable only to the proceedings in the district court.' Below this, there are tabs for 'Synopsis', 'West Headnotes', 'Attorneys and Law Firms', 'Opinion', and 'All Citations'. The 'Opinion' tab is selected, showing a detailed breakdown of citations and their status regarding overruling risk.

The screenshot shows the 'Compare versions' feature for T.C.A. § 47-18-2107. It displays differences between versions effective July 1, 2016 to April 3, 2017 and April 4, 2017 [current]. The interface shows 58 deletions and 59 additions. A 'Highlights' button is visible. The text of the statute is shown with changes highlighted in green and red, and explanatory notes in blue.

## Statutes Compare and Regulations Compare

Quickly understand how a statute or regulation has changed over time. With just one click, you can easily see the most recent changes to a statute or regulation right from the document, and compare any two versions from the History tab.

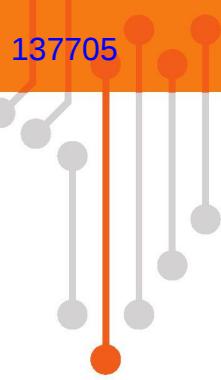
- Get coverage for all statutory content and federal regulations, plus state regulations in select states
- Toggle to the next and previous difference when comparing
- Download, print, or email the comparison

For more information, visit [WestlawEdge.com](https://WestlawEdge.com)



# EXHIBIT 42

# 10 quick tips for using Westlaw Edge



Thomson Reuters Westlaw Edge™ offers tools to help you be more strategic, responsive, and confident in your legal research results. Rely on advanced features such as **WestSearch® Plus**, **Litigation Analytics**, **KeyCite® Overruling Risk**, and **Statutes Compare** to provide you with the fastest answers and most valuable legal insights – all fully integrated within Westlaw Edge for an intuitive and seamless research experience.

**Check out these 10 quick tips to help you get started.**

## WestSearch Plus

Find authoritative answers even faster and ensure you haven't missed anything important with the next generation of legal search.

- 1 Start typing your question into the global search bar, e.g., **When is character evidence admissible?**

Relevant questions containing your search terms will be generated in the box below. Selecting a question will help you find an answer faster.

The screenshot shows the WestSearch Plus interface. In the top left, there's a global search bar with the query "When is character evidence admissible?". To its right is a dropdown menu set to "All state & federal". Below the search bar is a "Suggestions" section with a black background. It lists several suggestions related to the query, such as "When is character evidence admissible?", "Cases", "Statutes", "Regulations", "Secondary Sources", and "Other". The "When is character evidence admissible?" suggestion is highlighted in yellow. To the right of the suggestions is a main content area. At the top of this area is another search bar with the same query. Below it is a heading "When is character evidence admissible? All state & federal". Underneath this, a text box states "Generally, character evidence is neither relevant nor admissible." Below this is a snippet from a case: "People v. Mandarino | Helpful? Yes | No | Appellate Court of Illinois, First District, Third Division. - June 28, 2013 - 2013 IL App (1st) 111772 - 994 N.E.2d 138". At the bottom of the content area, a note says "Relevant character evidence may be admissible, but irrelevant character evidence is never admissible."

Advanced typeahead generates suggestions to help you find your answers faster.

- 2 Uncover on-point caselaw and Secondary Sources with a new sophisticated typeahead feature

Enter your terms in the global search bar, e.g., **fraudulent conveyance**, and WestSearch Plus produces predictive results right from the search box, greatly reducing the number of cases you potentially need to read through.

The screenshot shows the WestSearch Plus interface with the global search bar containing the query "fraudulent conveyance". To its right is a dropdown menu set to "All state & federal". Below the search bar is a "Suggestions" section with a black background. It lists several predictive suggestions: "Does the discovery rule toll the statute of limitations for fraudulent conveyance?", "Cases", "Statutes", "Regulations", "Secondary Sources", and "Other". The first suggestion is highlighted in yellow. To the right of the suggestions is a main content area. At the top of this area is another search bar with the same query. Below it is a heading "Does the discovery rule toll the statute of limitations for fraudulent conveyance? All state & federal". Underneath this, a text box asks "What are the elements of fraudulent conveyance?". Below this is a snippet from a case: "What are the elements of constructive fraudulent conveyance? All state & federal". At the bottom of the content area, a note says "Search Suggestions Cases with the Key Number for fraudulent conveyances/criminal responsibility/offenses".



## Litigation Analytics

Quickly access and uncover relevant, data-driven insights on judges, courts, attorneys, law firms, and case types across the most practice areas.

### 3 Access attorney and judge overview pages using typeahead in the global search box

To view the profile information of an attorney or your assigned judge, simply type their name into the global search bar and Snapshots will appear in the drop-down below, providing direct access to their overview page.

### 4 You can also access attorney and judge overview pages from linked names in cases and dockets

Clicking a linked attorney or judge name within a case or docket will take you to their overview page where you can dive deeper into litigation history, motion reports, and appeals reports for judges.

Go from an attorney or judge name to their corresponding overview page.

### 5 Use search within results on Litigation Analytics result lists for more granular data

Quickly get up to speed on a prospective matter with **search within results**, which also helps you save time with:

- A. Searching across dockets and the full text of related trial documents to reveal arguments, issues, and fact patterns applicable to the case
- B. Viewing court opinions and dockets within the result list
- C. Having direct access from the result list to the exact portion of the docket referencing what you need

Use **search within results** to drill down to precisely what you need.

## 6 Explore all Litigation Analytics tabs to help craft your litigation strategy

**Dockets** gives you a better understanding of the experience and caseload of attorneys and judges in addition to those trends across courts, law firms, and case types.

**Outcomes** helps you better advise your client on likely outcomes and length of time to resolution of parties relating to judges they've appeared before in civil federal district court cases.

**Motions** allows you to determine the potential success rate of, and therefore the value in, filing different motions before the judge. The Motions tab includes a visualization of this data as well as a result list containing relevant motions, orders, and dockets.

**Expert Challenges** helps you make more informed decisions around which experts to use with insight into how often your judge has admitted or excluded expert testimony, and whether your expert has appeared before your judge.

**Appeals** allows you to better understand how your assigned judge has fared on appeal and the resolution of appeals brought before a judge and an overall court.

## KeyCite Overruling Risk

### 7 Trust that you're citing good law

Only Westlaw Edge has a citator warning that cautions you when a point of law in your case has been implicitly undermined based on its reliance on an overruled or otherwise invalid prior decision. The Overruling Risk icon appears in the same location as KeyCite flags and a new Overruling Risk section displays on the Negative Treatment tab.

Fox v. City University of New York  
United States District Court, S.D. New York - May 5, 1999 187 F.R.D. 83 (Approx. 22 pages)

Document Filings (1) Negative Treatment (1) History (9) Citing References (52) Table of Authorities Powered by KeyCite

Synopsis West Headnotes Attorneys and Law Firms MEMORANDUM OPINION AND ORDER All Citations Footnotes

Overruling Risk Bowles v. Russell, U.S., June 14, 2007  
Original Image of 187 F.R.D. 83 (PDF)

187 F.R.D. 83 United States District Court, S.D. New York - May 5, 1999 187 F.R.D. 83 (Approx. 22 pages)

Document Filings (1) Negative Treatment (1) History (9) Citing References (52) Table of Authorities Powered by KeyCite

**KeyCite: Negative Treatment**

**Overruling Risk (1)**

The KeyCited document has potentially been negatively impacted by the following events or decisions in other litigation or prior to this document.

Treatment	Title	Date
Overruling Risk	J. Bowles v. Russell 127 S.Ct. 2360	June 14

LITIGATION - Appeals. Litigant could not rely on unique circumstances exception to excuse untimely filing of notice of appeal in civil case.

Overruling Thompson v. Immigration and Naturalization Service

With Overruling Risk warnings, KeyCite goes beyond explicit relationships to now cover implicit relationships.

## Statutes Compare

### 8 Understand quickly how a statute has changed over time

To view the most recent legislative changes to a statute, click **Compare Versions** in the toolbar. You'll see the statute's current version compared with its previous version, if other versions are available.

§ 170. Charitable, etc., contributions and gifts  
United States Code Annotated Title 26. Internal Revenue Code Effective: March 23, 2018 (Approx. 27 pages)

Document Notes of Decisions (646) History (4,811) Citing References (35,382) Context & Analysis (876) Powered by KeyCite

Table of Contents § < > Outline

Compare Versions

Compare current and previous statute versions with simplicity.

## 9 See changes between any statute version

Speed your analysis with the ability to pick which statute versions to compare and see the changes noted.

You can compare changes in any two versions from the History tab, e.g., you can pick the earliest and latest versions to see everything that's changed in this time period. You can also easily download, print, and email comparisons to assist your preparation.

Gain even more flexibility by choosing any two versions of a statute to compare.

Once you've selected two versions of a statute to compare, click **Compare** to view the changes over time.

Speed your analysis by easily viewing your marked changes. And, easily download, print, and email comparisons to assist your preparation.

## 10 Unlock the power of Westlaw Edge with access to your dedicated research support

The Insight Attorney team provides an advanced level of support exclusive to Westlaw Edge customers. This select group holds industry-exclusive training in analytics, artificial intelligence, and big data, and you can rely on them to assist you with your research needs on Westlaw Edge.

The Insight Attorney team is available 7 a.m.-7 p.m. CST, Mon.-Fri. For research support outside of these hours, the Reference Attorney team is still available 24/7. You can reach the Insight Attorney and Reference Attorney teams both directly at 1-800-REF-ATTY.

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the answer company™  
**THOMSON REUTERS®**

# EXHIBIT 43

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**Content ID:** 3890

**Folder:** Westlaw - Government

**Title:** Westlaw Edge – Intro and Features [WL4G]

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## Westlaw Edge

### THE MOST INTELLIGENT LEGAL RESEARCH PLATFORM EVER

Since 1872, our company has been collecting, analyzing, and organizing legal data to make legal research easier and faster for users. Westlaw Edge builds on the premium content and performance the legal industry has come to expect from Thomson Reuters in ways never before possible. By combining artificial intelligence (AI) and data with the experience, knowledge, and judgment of modern lawyers, legal departments can take their work to the next level.

The new, advanced features of Westlaw Edge allow legal professionals to practice with an unprecedented degree of certainty and confidence. Westlaw Edge provides legal professionals with the next generation of AI-driven legal search, first of its kind new warnings for law that is no longer valid, unrivaled litigation analytics, and sophisticated new research tools that help legal professionals deliver results to clients faster and more accurately.

Here are a few ways Westlaw Edge can elevate your legal research experience so you can work, think, and deliver results even faster:

#### BE PREPARED WITH **QUICK CHECK**



Westlaw Edge Quick Check securely analyzes your briefs to suggest highly relevant authority and ensure you haven't missed anything important. Rely on Quick Check to find authority that traditional research may have missed.

- Seamless integration with Westlaw Edge allows you to filter out citations you've viewed in the past 30 days and what you've already save to a folder.
- See time-saving details for why a suggested authority might be important.
- Review differences between case quotes in a document to the cited case language on Westlaw Edge.
- Receive recommendations from the largest collection of secondary sources, briefs, and memoranda.

#### QUICK CHECK JUDICIAL

Analyze multiple documents from a single matter at one time - your own and your opponent's. Quickly compare the citations you each relied on, plus gain an understanding of what relevant authority was omitted and how that may affect your argument.

#### BE RESPONSIVE WITH **WESTSEARCH PLUS**



WestSearch Plus leverages sophisticated type-ahead functionality to anticipate which topics users are searching and then delivers responsive text from relevant documents to the top of their result list. This helps decrease their time spent looking and researching for a given topic or answer and is an essential time-saver, especially when researching unfamiliar areas of law.

- Take advantage of the most powerful legal search engine, designed by attorneys for attorneys.
- Find answers to legal questions that can be answered in a sentence or two—within seconds.
- Connect directly to the relevant underlying authority.

## BE STRATEGIC WITH LITIGATION ANALYTICS



Litigation Analytics leverages the most state and federal dockets to deliver clear, visual, and relevant data-driven insights and trends on judges, attorneys, law firms, courts, and case types to help you build your strongest case strategy.

- Set and manage client expectations for outcomes, timelines, and cost.
- Understand your assigned judge, including familiarity with a subject matter based on past cases, their record on appeal, approach to expert witnesses, and the authority they tend to cite.
- Assess how often your judge has admitted or excluded expert testimony and whether your expert has appeared before your judge.
- Evaluate opposing counsel's experience.
- Evaluate potential settlements and award with damages analytics.

## PRECEDENT ANALYTICS

Make stronger arguments and quickly uncover key insights based on topics, by seeing the cases a judge regularly relies on, and other judges frequently cited.

## BE AWARE WITH KEYCITE OVERRULING RISK



KeyCite Overruling Risk builds upon the capabilities of our current KeyCite service, identifying cases that contain implicitly overruled or invalidated law. Quickly verify good law and find citing references to expand your research.

- Get warnings on implicitly overruled or abrogated points of law.
- See an orange warning icon, similar to red and yellow flags, integrated into your research.
- Avoid reviewing each case manually to determine whether it cites an implicitly overruled point of law.
- Leverage state-of-the-art AI to identify bad law that has no direct citations pointing to its validity.

## BE INFORMED WITH STATUTES COMPARE AND REGULATIONS COMPARE



Statutes Compare and Regulations Compare are intelligent comparison tools that instantly show users precisely how a statute or regulation has changed over time, the authority behind the changes, and allow the users to compare two versions to show where they differ.

- Get coverage across all practice areas for all statutory and regulatory content with versions.
- Quickly see how any two versions of a statute and regulation have changed over time, right from the History tab.
- With the Compare Text tool, compare the language of documents across many content sets.

## KEEP TRACK OF LAWS ACROSS THE US WITH JURISDICTIONAL SURVEYS



Jurisdictional Surveys allows you to quickly retrieve a customized and relevant compilation of laws across all US jurisdictions on virtually any topic. Jurisdictional Surveys accounts for variances of terminology needed to ensure a comprehensive and accurate starting point.

- Assess laws across jurisdictions to help establish a litigation strategy.
- Understand jurisdictional variances as they relate to compliance activities.
- Refine a legal argument based on how other jurisdictions have handled an issue.
- Identify new or emerging policy trends (e.g., immigration, cybersecurity).

An Artificial Intelligence platform for legal research  
is only as strong as the data, people, processes, and experience behind it.

**How did we do it?** We brought together a team of Thomson Reuters research scientists with expertise in AI and legal data; our attorneys who best understand our exclusive collection of law summaries, legal classifications, and legal citation relationships; and our most talented product designers to address the areas where both new lawyers and experienced practitioners want better tools.



#### EDITORIAL QUALITY

- Dedicated Attorney Editors with experience in 40 practice areas
- 100+ years of editorial enhancements



#### DATA QUALITY

- Leading taxonomy (Key Numbers) and secondary sources
- Sophisticated citation mapping with KeyCite



#### INNOVATIVE TECHNOLOGY

- Specialists in AI, machine learning, natural language processing, and data mining
- Experience with legal content, taxonomies, and citation networks

## Quick Check

Westlaw Edge Quick Check quickly reviews user's motions, briefs, or other legal documents to find highly relevant authority, secondary sources, and other related briefs and memoranda to ensure Westlaw Edge customers find what they may otherwise miss in traditional legal research.

Quick Check leverages advanced artificial intelligence to examine the text, citations, and structure of your uploaded document to detect the legal issues covered. It then identifies recommendations that are highly relevant to the issues in the input document, but not otherwise cited. Often, you may see indicators for a specific recommendation, such as from a high court, cited frequently, and decided within the last two years. Plus, KeyCite is fully integrated to provide the information you need to verify the cases you cite are still good law.

The screenshot shows the Westlaw Edge - Quick Check interface. At the top, there are tabs for 'Recommendations', 'Warnings for cited authority', 'Quotation analysis', and 'Table of authorities'. The 'Recommendations' tab is selected. On the left, a sidebar shows a breakdown of recommendations: Cases (10), Briefs and memoranda (4), Secondary sources (4), and All recommendations (18). Below this is a 'Filter' section with options like 'Document headings', 'Search within results', 'Recommendation tag', 'Jurisdiction', and 'Date'. The main content area displays 'Cases (10)' and a specific case entry for '1. Spokeo, Inc. v. Robins'. The case summary includes the Supreme Court of the United States, date (May 16, 2016), and citation (2016 WL 2842447, 136 S.Ct. 1540). A note states: 'Outcome: Consumer could not satisfy the injury-in-fact demands of Article III standing by alleging a bare procedural violation of the FCRA.' To the right, there are icons for 'High court' and 'Frequently cited'.

*Discover a new level of confidence—feel confident you have found the strongest, most relevant authority for your argument.*

With Quick Check, you can review whether an opponent has cited an invalidated, overturned, or abrogated case and quickly see if the point of law that was impacted is at issue in your matter. You can also use the omitted authority tab to find cases that are highly relevant to the issues in your opponent's document but that they chose not to cite.

Quotation Analysis provides an at-a-glance report that displays a side-by-side comparison highlighting missing, added, or changed language between case quotes in an uploaded document and cited case language on Westlaw Edge. The report also offers crucial content around the quotes for easily seeing when quotes have been taken too much out of context and allows users to jump into the quoted cases to see additional context. Secondary Sources and Administrative Decisions & Guidance content types within Quick Check provide a robust view of uploaded documents within the Table of Authorities and Quotation Analysis, an exclusive feature on Westlaw Edge. You also can filter on these content types in Quotation Analysis.

With Quick Check Judicial, you can analyze multiple filings from a single matter. Upload up to six documents and receive an easy-to-review report where you can compare the citations relied upon by each party. Uncover relevant authority that was omitted and quickly verify the accuracy of quotations and citations.

## WestSearch Plus

WestSearch Plus is a next-generation legal search engine that uses state-of-the-art AI to guide users to answers to legal questions much faster. The first of its kind, WestSearch Plus uses machine learning, natural language processing, citation networks, and our exclusive West Key Number System to return the relevant documents researchers are seeking and quickly leads users to answers to thousands of types of legal questions.

The screenshot shows the WESTLAW EDGE - WESTSEARCH PLUS interface. At the top, there is a search bar containing the text "fraudulent conveyance". To the right of the search bar are dropdown menus for "All Federal" and a magnifying glass icon for "Advanced". Below the search bar, a sidebar on the left lists categories: "Suggestions", "Cases", "Statutes & Court Rules", "Regulations", "Secondary Sources", and "Other". The "Suggestions" category is currently selected, displaying several legal queries related to "fraudulent conveyance". At the bottom of the interface, there are links for "Administrative Decisions & Guidance" and "Proposed & Enacted Legislation".

*Get the information you need faster—As you enter your legal query, predictive typeahead serves up the most relevant Search Suggestions for a more focused result.*

Get superior predictive research suggestions across thousands of legal topics so users can find authoritative answers even faster. Predictive typeahead leverages state-of-the-art AI to reveal relevant queries in the global search box. When users select a suggested query, they will be directed to the most relevant text without needing to scan the entire results list and allowing them to directly address their question more quickly. Users can also filter their results further by selecting a specific content type, such as cases, statutes, regulations, and secondary sources.

## Litigation Analytics

Integrated Litigation Analytics enables legal professionals to quickly view relevant insights on judges, courts, attorneys, and law firms to help guide the best trial strategy; inform litigation timelines, resource needs, and budgets; and allow for faster, more sophisticated legal research. No other analytics tool has as much data or as many practice areas across both state and federal courts as Westlaw Edge.

The screenshot shows the Westlaw Edge - Litigation Analytics interface. At the top, there's a navigation bar with 'WESTLAW EDGE' and a dropdown menu. Below it is a search bar with 'Litigation Analytics' selected and a placeholder 'Search for judges, courts, attorneys, law firms, and case types'. The main content area displays a judge profile for 'Hon. Marianne O. Battani' from 'United States District Court, Eastern Michigan' in 'Detroit, Michigan 48226'. The profile includes tabs for 'Overview', 'Dockets', 'Outcomes', 'Motions', 'Precedent', 'Expert challenges', 'Appeals', and 'References (10,000)'. The 'Overview' tab is active. On the left, there's a chart titled 'Motions (Civil)' showing the percentage granted for various motion types. On the right, there's a sidebar with 'Position' (Senior Judge, since June 09, 2012), 'Career timeline' (Honorary LLD from Detroit College of Law in 1994, Michigan Judicial Tenure Commission Past Chair in 1991, Michigan Circuit Court Third Judicial Circuit Judge in 1982, Michigan District Court Thirty-Sixth Judicial District Judge in 1981-1982, Common Pleas Court of the City of Detroit Judge in 1981, Michigan 1972, U.S. District Court Eastern District of Michigan 1972, Private Practice Attorney 1972-1981), 'Contact' (United States District Court, Eastern Michigan, Theodore Levin U.S. Courthouse, 231 W. Lafayette Blvd, Room 277, Detroit, Michigan 48226), and a 'Print' button.

**Sharpen your advantage with data-driven insights—Example shown is judge information; data-driven insights are similarly available for courts, attorneys, law firms, and case types.**

Litigation Analytics covers dockets for every federal case type except bankruptcy. It also includes 8.6 million federal civil court dockets, over 4.5 million federal criminal court dockets, and 162 million state court dockets (civil and criminal), plus motion analytics for 28 types of federal motions. Litigation Analytics includes expert challenge reports and leverages over 400 million citing relationships to determine how judges rely on prior precedent. Quickly get up to speed on a prospective matter with granular filtering by motion type, as well as an exclusive "search within" option to enter your own custom filter within a filter. Build the most powerful case strategy and manage client expectations with relevant, timely insights on judges, courts, attorneys, law firms, and case types. State coverage varies by jurisdiction.

## KeyCite Overruling Risk

Trust your users are citing good law with KeyCite Overruling Risk, which cautions users when a point of law in their case has been *implicitly* undermined regardless of whether it relies on an explicitly invalidated prior decision. From the Negative Treatment tab, see links to cases that may have caused the Overruling Risk icon to appear, as well as cases they expressly overruled or abrogated.

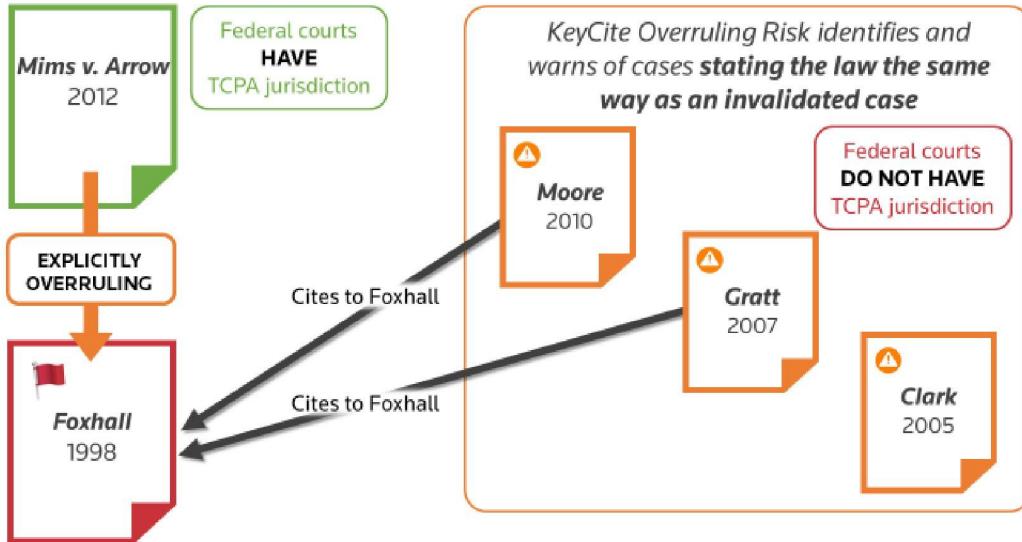
*Trust that you're citing good law—The orange Overruling Risk warning calls attention to cases within the results*

WESTLAW EDGE - KEYCITE OVERRULING RISK

The screenshot shows the Westlaw Edge interface with a search term 'childress v. heckler' entered. The left sidebar lists 'Content types' such as Overview, Cases, Trial Court Orders, Statutes & Court Rules, Secondary Sources, Practical Law, and Regulations. The main results page shows two entries: '1. Childress v. Heckler' (1985) and '2. Heckler v. Ringer' (1984). The 'Childress v. Heckler' entry includes a brief synopsis and several related cases, with an orange 'Overruling Risk' icon next to the case name.

*list and from atop the document.*

Know the current state of the law with artificial intelligence that automatically evaluates the risk that a case cites an implicitly overruled point of law. Legal professionals will be more confident in their research with keen insight into how the current state of law impacts their case.



## Statutes Compare and Regulations Compare

Statutes Compare and Regulations Compare enable researchers to see statutory or regulatory language changes with just a click of a button, and it is available for both federal and state statutes with versions, as well as federal and most state regulations. Save time by eliminating the need to go through session laws or the Federal Register to understand how the law has changed and from what authority those changes came. Easily compare the text at the time of your cause of action to the current version to see what has changed.

**WESTLAW EDGE - STATUTES COMPARE AND REGULATIONS COMPARE**

The screenshot shows a comparison interface for Westlaw Edge. At the top, there's a header bar with the title 'WESTLAW EDGE - STATUTES COMPARE AND REGULATIONS COMPARE'. Below this is a toolbar with various icons and a status bar indicating 'Total: 58 differences' and '30 deletions - 28 additions'. A key legend shows 'deleted text' in red and 'added text' in blue. On the left, a sidebar titled 'Compare versions' shows 'Showing differences between versions effective January 1, 2004 to June 23, 2004 and June 24, 2004 [current]'. The main content area displays a section of the West's Ann.Cal.Gov.Code § 22793 22853. The text is presented in a standard font, with red strikethroughs for deleted text and blue highlights for added text. A green box highlights a specific clause: '§ 22793 | 22853. Contents of contracts ; exclusions based on status prohibited; option to convert to individual policy; grievance procedures; chiropractic services'. Below this, several numbered clauses (a) through (d) are listed, each containing some red strikethroughs and blue highlights. A green box at the bottom of the list indicates that the contract must provide for grievance procedures to protect the rights of employees and annuitants.

Stay informed of changes in the law—See the text that was deleted from the latest version in red strikethroughs, and text that was added to the latest version in blue with highlights.

Quickly understand how a statute or federal regulation has changed over time. With each change, our attorney-editors create new versions of statutes or federal regulations so your users can trust they are comparing the most accurate versions available. Statutes Compare and Regulations Compare on Westlaw Edge lets users easily see the most recent changes to a statute or federal regulation right from the document and allows you to compare any two versions; added text appears in blue highlight and deleted text in red strike-through. Statutes Compare provides coverage for all state statutory content with versions across all practice areas—coverage varies by jurisdiction. Regulations Compare provides coverage for all federal regulatory content and most state regulations with versions.

## Jurisdictional Surveys

Jurisdictional Surveys on Westlaw Edge allows you to quickly retrieve a customized and relevant compilation of laws across all US jurisdictions to expedite the creation of your survey. The materials you need to build your survey are readily available. Simply start with:

- The citation of the statute you know
- Index terms that describe your topical target
- A predefined topic page

Jurisdictional Surveys provides a simplified search experience optimized for the task of compiling an inventory of related laws on a topic. The result is a curated list of statutory sections that accounts for varying terminology across all jurisdictions. Refine the list of statutory sections as you please and focus on identifying and analyzing statutory variances and similarities.

**Customize your survey**

By citation   By index term **By topic**

Add term i

Add

Suggested terms

- driving under influence of alcohol or drugs
- driving
- driving on

fines and penalties X   driving under influence of alcohol or drugs X

### WESTLAW EDGE JURISDICTIONAL SURVEYS

WESTLAW EDGE

Home > Jurisdictional Surveys

**Survey report for "Fines And Penalties" AND "Driving Under Influence Of Alcohol Or Drugs"**

Edit

**Related terms**

- Driving Under Influence Of Alcohol Or Drugs
- Include all (13)
- Deficiencies (104)
- Driving Under Influence Of Intoxicating Liquor Or Narcotic Drugs (18)
- Driving While Intoxicated (40)
- Drunk Driving (53)
- DUI (158)
- [show more](#)

- Fines And Penalties
- Include all (6)
- Discipline (10)
- Fines And Forfeitures (4)
- Penalties (23)
- Punishment (48)
- Sanctions (4)

**Overview**

591 relevant results found in 49 states, District of Columbia and federally.



Hide Map

Top	Results
Nevada	32
California	31
Illinois	26
North Carolina	26
Florida	21

**Survey Results (590)**

1 - 20 >

No items selected

Reset Zoom   Collapse all

*Expedite the creation of accurate surveys—Customize your list of statutory sections by adding or excluding terms and filtering down to the jurisdictions of interest.*

Jurisdictional Surveys leverages our editorially applied Index taxonomy, allowing you to avoid having to construct the perfect search query. You get a curated list of statutory sections from which you can expand or refine your survey.

## User Interface Enhancements

Legal researchers have unique needs when it comes to software, and those needs extend to the user interface. Based on extensive research with hundreds of users, Westlaw Edge features a revamped user interface. New filters minimize scrolling, updated toolbars improve efficiency, and new document formatting makes content easy to scan. The new user interface also incorporates additional accessibility features to better serve more customers. Thomson Reuters plans to continue to enhance the user interface with further improvements based on customer feedback.

Westlaw Edge provides the legal research tools, answers to legal questions, and insight into litigation matters that will enable users to quickly and accurately conduct legal research, rapidly answer client questions, move through routine work much faster, and help even experienced practitioners avoid mistakes when working on something complex. The artificial intelligence behind Westlaw Edge and careful development by our experts make this innovation possible and help us deliver trusted answers and valuable insights to our customers at the precise moment they become available, making Westlaw Edge truly the most intelligent legal research platform ever.

# EXHIBIT 44

# Westlaw Edge™

The most intelligent legal research platform ever.

## 2019 Funding Request - DRAFT

Erik Lindberg  
Sept. 2018

Sensitivity: Confidential



## Westlaw Edge is NOT done

The value story for Westlaw Edge focuses on how it helps lawyers to be more efficient and effective with their legal research and to have greater confidence that they have the right information

Further investment in Westlaw Edge is necessary to:

1. Improve the quality and accuracy of the AI-driven capabilities, as well as to increase the coverage of the new AI-driven features
2. Invent new capabilities and enhance other features by creating new AI models and further leveraging our data and editorial enhancements to add more real customer value
3. Implement processes and systems to maintain the new Westlaw Edge features and keep the underlying data up to date (manual processes required to support the launch are not sustainable)

**Westlaw Edge marketing messages and customer expectations for AI often exceed the actual capabilities of the current product. Further investment is needed to support what was launched and to close the expectation gaps.**

Sensitivity: Confidential



## 2019 Westlaw Edge Priorities

1. Improved Document Analyzer\*
2. KeyCite Overruling Risk\*†
3. WestSearch Plus QA\*†
4. Litigation Analytics\*\*
5. Dynamic Statute Surveys
6. Compare Versions for State Regulations
7. Filters/Fields for Procedural Posture & Material/Key Facts\*†
8. WestSearch+ Enhancements\*
9. Claims Explorer\*
10. Micro-Clusters\*
11. Smaller Improvements to Westlaw Edge

\*Projects requiring AI-based inventions and support from R&D

\*\*Assume Litigation Analytics will continue to be planned and funded separately

†Projects requiring CS&E support beyond PPT testing

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## Document Analyzer

1. New cases algorithm with global ranker (Strategic Approach)
2. Clerk Version (Comparison of up to 5 input documents from 2 parties)
3. Real Time OCR (Support Image PDFs and use as fallback for poorly formatted MS Word or PDF input docs)
4. UI updates with combined recommendations by issue and by citation, plus overall top recommendations for entire document
5. User Use Case UI and Algorithm changes (based on user's selection of use case up front, such as rough draft input, opponent's input, updating input for time and jurisdiction, final check of input)
6. Sentiment Analysis (indicate if recommended case supports or is contrary to argument in input doc)
7. Close Gaps (identify other claims or defenses that are related to issues in input doc)
8. Statutes (revisit R&D solution to replace initial simpler approach)

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THOMSON REUTERS  
WESTLAW EDGE

98437-9201 History Folders Favorites Notifications Advanced

All content Enter terms, citations, databases, questions, anything ... California

District Court of Appeal of Florida, Third District. January 18, 2012 77 So.3d 855 37 Fla. L. Weekly D188 (Approx. 9 pages)

Document Filings (6) Negative Treatment (1) History (3) Citing References (67) Table of Authorities Powered by KeyCite

Synopsis

West Headnotes

Attorneys and Law Firms

+ Opinion

All Citations

Footnotes

Overruling Risk Cortez v. Palace Resorts, Inc., Fla., June 20, 2013

Original Image of 77 So.3d 855 (PDF)

77 So.3d 855  
District Court of Appeal of Florida,  
Third District.

ROLLS-ROYCE, INC., et al., Appellants,  
v.  
Oscar Garardo Posadas GARCIA, et al., Appellees.

Nos. 3D11-537, 3D11-548, 3D11-502.  
Jan. 18, 2012.

Synopsis

Background: Pilot and passengers of helicopter that crashed brought actions against manufacturers of helicopter, engine, and digital control system for negligent design, manufacture, sale, inspection, testing, maintenance, and modification of helicopter. Actions were consolidated. The Circuit Court, Miami-Dade

## KeyCite Overruling Risk

### Saves Time

This tool literally would save hours and made me realize that I have been doing this kind of research wrong this whole time.

– Sr. Associate, Am Law 25

Love it. **Complete game changer.** This tool shaves off research time and would completely change how I research case law.

– Associate, Am Law 50

### Reduces Risk

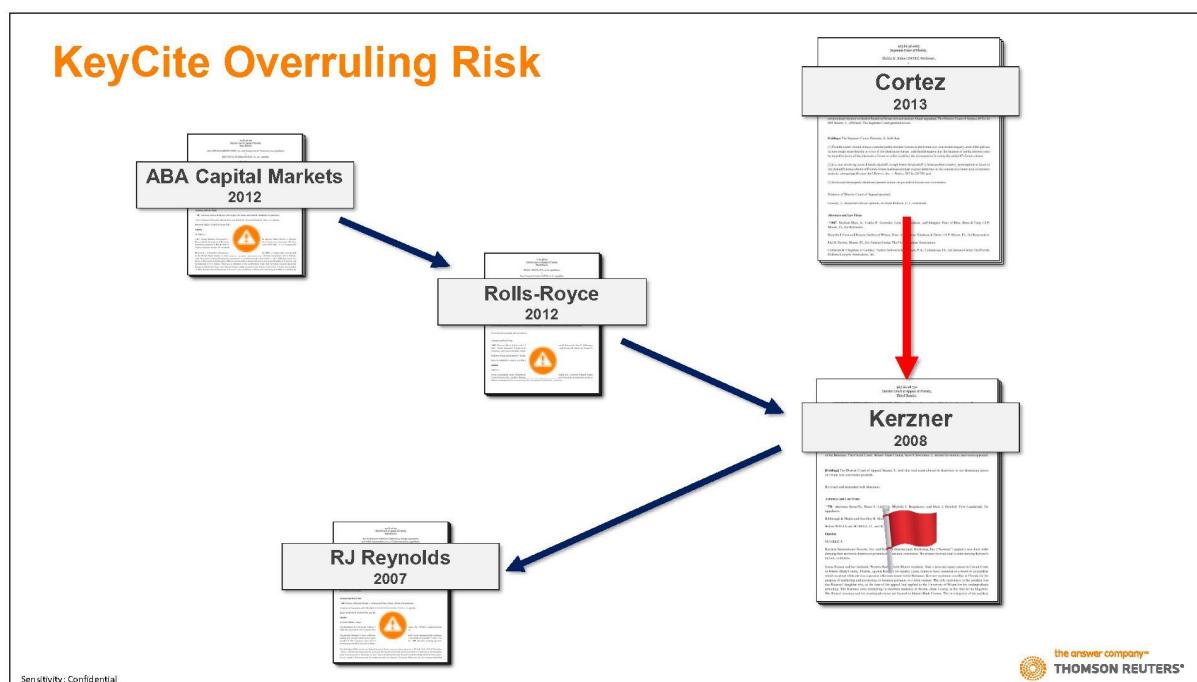
This would be invaluable. Every attorney's **greatest fear is to cite law that is no longer good.**

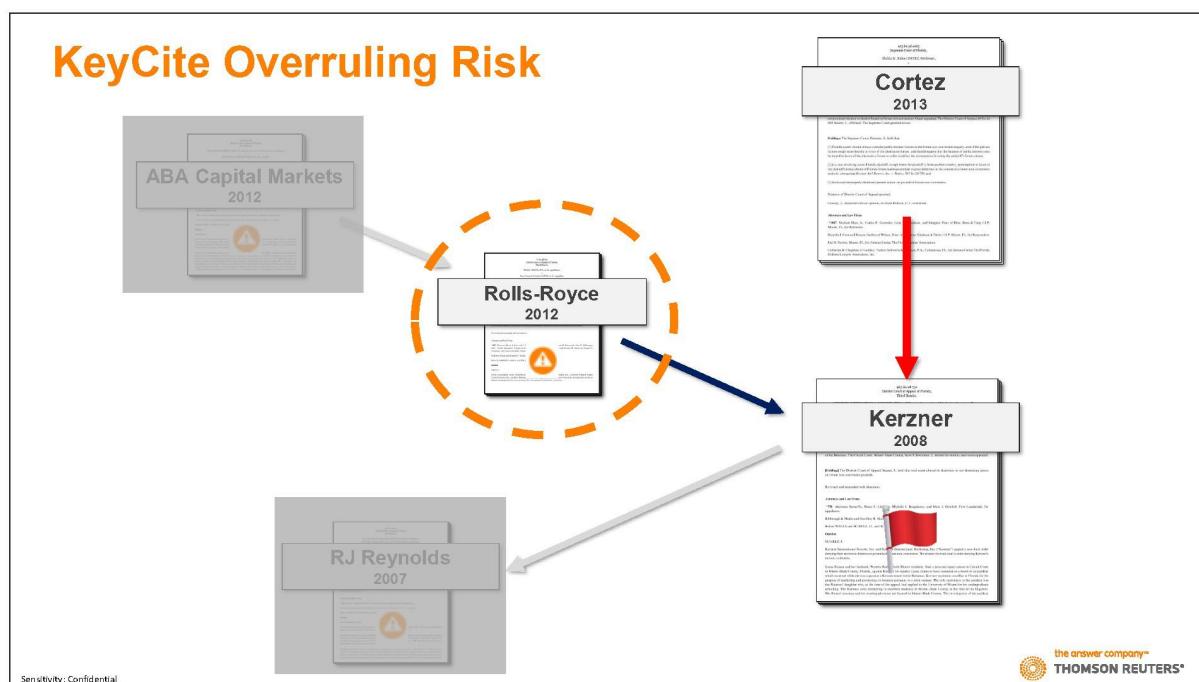
– Corporate Counsel, Fortune 500 Company

I would use it all the time. **It lessens the risk of being blindsided by an adversary.**

– Associate, Am Law 100

Sensitivity: Confidential





## KeyCite Implied Overruling Risk

1. More relationships for cases that cite to explicitly overruled case (more “unseen” relationships and indirect history codes)
2. Implement all changes to R&D Static KCIO system to support automatic updating as new content is received (weekly updating)
3. Add relationships for cases cited by explicitly overruled case
4. Highlight impacted language in the impliedly overruled cases
5. Add relationships for cases negatively impacted by a direct history chain
6. Add relationships for cases addressing same point of law as explicitly overruled but without any citing relationships or with multiple step citing relationships (may require R&D/Editorial hybrid approach and leverage circuit-split tagging)

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The screenshot shows the Thomson Reuters Westlaw Edge interface. At the top, there's a navigation bar with 'THOMSON REUTERS WESTLAW EDGE' and links for 'ATM-001', 'History', 'Folders', 'Favorites', 'Community', 'Notifications', and user profile icons. A search bar at the top has the query 'How does an employee show pretext'. To the right of the search bar are buttons for '2nd Circuit', a magnifying glass icon, and a refresh icon. Below the search bar is a dropdown menu titled 'Suggestions' which lists 'Cases', 'Statutes', 'Regulations', 'Secondary Sources', and 'Other'. The main search results area shows a list of items under 'Cases' and 'Statutes'. On the left, there's a sidebar with categories like 'Secondary Sources', 'Practical Law', 'Regulations', 'Administrative Decisions & Guidance', 'Arbitration Materials', and 'Briefs'. On the right, there's a sidebar with 'Jury Verdicts & Settlements', 'Key Numbers', 'Proposed & Adopted Regulations', 'Proposed & Enacted Legislation', 'Trial Court Documents', and 'Trial Court Orders'. A callout box on the right side says 'View insights on judges, courts, and case types to build a winning case strategy.' with a small chart icon.

THOMSON REUTERS  
WESTLAW EDGE

ATM-007 History Folders Favorites Community Notifications Advanced

All content How does an employee show pretext for retaliation for purposes of a Title VII discrimination claim 2nd Circuit Advanced

**Content types** Set default

Overview	14
<b>Cases</b>	<b>82</b>
Statutes	53
Secondary Sources	158
Practical Law	0
Regulations	50
Show more	
Filter	
<input type="checkbox"/> Select multiple	
Filter category	
Cases	
<a href="#">Restore previous filters</a>	

**How does an employee show pretext for retaliation for purposes of a Title VII discrimination claim?**  
2nd Circuit

For retaliation claims under Title VII, because the burden of persuasion at all times rests on the claimant, to establish pretext the claimant must show both that the defendant's reason was false and that the defendant intentionally retaliated against him because he engaged in a protected activity; however, the retaliatory motive does not have to be the sole motive for the adverse employment action, it just must be one of the reasons.

**Clarke v. One Source Facility Services, Inc.** | Helpful? Yes No  
United States District Court, S.D. New York. • April 19, 2001 • 168 F.Supp.2d 91 • 2001 WL 396445  
Associated Content: 42 USCA § 2000e • Definitions • See section for effective date

To establish pretext for a Title VII retaliation claim, a plaintiff must produce sufficient evidence to cast doubt onto defendants' proffered reasons, and that more likely than not retaliation for complaints of discrimination was the real reason for the adverse employment actions.

**Lore v. City of Syracuse** | Helpful? Yes No  
United States District Court, N.D. New York. • October 30, 2008 • 583 F.Supp.2d 345 • 2008 WL 4736654

## WestSearch Plus Question Answering

I would use it all the time! It is the most efficient way to get answers to your questions, and **it will cut down on research costs.**

– Sr. Associate, Am Law 100

For me, the challenge is finding the 'key' case on an issue – the answers **gave me more confidence** that I was finding that case.

– Associate, Am Law 50

This would reduce my firm's research cost – I could find an answer in **5 minutes instead of 35.**

– Associate, Am Law 200

Currently, using Boolean searches to get a case for a basic point of law is cumbersome. Being able to type in a question **speeds up the process by ten times.**

– Associate, Am Law 200

Sensitivity: Confidential

## WestSearch Plus Question Answering

### Big Current Limitations:

1. To minimize risk of showing a law summary that is responsive to a research question but describes outdated law, summaries shown are filtered to include:
  - Only relatively recent and published cases (this generally requires that the issue actually went to trial and then ultimately was resolved by an appellate court)
  - Only cases without any red flags or orange warnings (KeyCite data is not specific enough to know if red flag/orange warning is for the same point of law)
2. Current system also can answer only a static set of research questions that have predefined responsive summaries and pass the filters above

**Customers are disappointed when WestSearch Plus frequently is not able to address their own questions related to their legal practice**

Sensitivity: Confidential



## WestSearch Plus - Question Answering

The screenshot shows the WestSearch Plus interface with the search query "What is a trade secret under the Trade Secrets Act?". The results page displays a sidebar with content types: Overview (15), Cases (1,105), Statutes (164), Secondary Sources (10,000), Practical Law (60), and Regulations (50). The main content area shows the question and a detailed legal definition from the Texas Civil Practice & Remedies Code, Article 134A.002.

Leverage existing Statutes Popular Name Data and Words & Phrases markup to programmatically generate new QA Pairs for "What is X under the Y Act?"

The screenshot shows the WestSearch Plus interface with the search query "When does the Copyright Act preempt a trade secrets claim?". The results page displays a sidebar with content types: Overview (16), Cases (111), Statutes (45), Secondary Sources (640), Practical Law (1), and Regulations (50). The main content area shows the question and a detailed legal definition from the California Practice Guide: Civil Procedure Trial Claims and Defenses, Ch. 1001(c) & 10-351.

Leverage highly structured secondary source content like Rutter's and O'Connor's to begin to generate additional QA pairs with limited editorial effort and maintenance.

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the answer company™  
THOMSON REUTERS®

## WestSearch Plus - Question Answering

1. Implement Dynamic system to provide real-time question answering of much broader scope of questions, but still with appropriate filtering to avoid out-of-date law
2. Update and retrain QA models based on user feedback and eventing
3. Add new content sets to Static QA data sets, potentially to include:
  - a) Definitions from Statutes Popular Names and Words & Phrases markup
  - b) Secondary sources (Rutter's California Practice Guides & O'Connor's Texas Causes of Action)
  - c) Practical Law (Glossary Documents & State Q&A Documents)
  - d) Additional frames derived from Deep-dive with R&D into Statutes and Regulations
4. Editorial Tool (QUAC) Enhancements and Integrate WLN & WL Edge QA data
5. Quality Enhancements
  - a) EC&S Editorial tooling and publishing changes (Cases & Codes)
  - b) Editorial staffing to investigate and update QA for changes in the law (e.g. circuit splits)
  - c) Enhanced KeyCite integration (leverage Implied Overruling logic to improve flag filters)
  - d) Improved Date and other filtering based on R&D analysis
  - e) Improve Sorting of Answer passages based on date & court level
  - f) Apply User Filtering to QA Teaser on Search Results

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THOMSON REUTERS  
WESTLAW EDGE

EMILY History Folders Favorites Notifications Advanced

All content Enter terms, citations, databases, questions, anything ... All state & federal Advanced

Home

## Dynamic Surveys

Fair Labor Standards Act

**Alabama**

- AL ST § 6-10-7 Wages, salaries or other compensation of laborers or employees for personal services
- AL ST § 25-2-2 Duties generally
- AL ST § 25-8-32 Legislative findings and intent
- AL ST § 25-8-37 Employment during school hours; employment of persons 14 or 15 years of age upon waiver of school attendance
- AL ST § 25-9-69 Compensation for rescue work; workers' compensation benefits
- AL ST § 25-11-3 Definitions
- AL ST § 31-2-88 Pay and subsistence for National Guard and Naval Militia in active military or naval service of state
- AL ST § 36-6-11 Longevity pay

**Alaska**

- AK ST § 23.10.050 Public policy
- AK ST § 23.10.055 Exemptions; compensation of executives, administrators, and professionals
- AK ST § 23.10.060 Payment for overtime, held unconstitutional by *Hageland Aviation Services, Inc. v. Harms*, 210 P.3d 444, 445+, 60,816, 60816+, 14 Wage & Hour Cas.2d (BNA) 1699, 1699+ (Alaska Jun 05, 2009) (No. S-12871, S-12881)
- AK ST § 23.10.065 Minimum wages
- AK ST § 23.10.070 Exemptions from minimum wage

Narrow

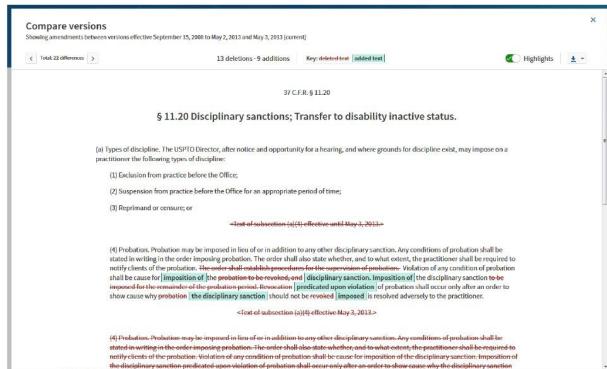
Apply Filters Cancel

Search within results

Jurisdiction + Statute Title +

## Compare Versions for State Regulations

1. Extend Compare Versions functionality to all state regulations that already have statute versioning available.



2. May need to provide toggle between editorially created compare versions for environmental and insurance regulations if there is added value not present in automatically generated comparisons

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## Procedural Posture Filter and Field

1. Leverage manually tagged data to work with R&D to build classifier for retroactive tagging process
  - a) Assign higher-confidence procedural posture statuses automatically
  - b) May require Editorial review of lower confidence statuses
2. Add Procedural Posture T&C field to Advanced Search templates
3. Additional Editorial projects to assign Procedural Posture statuses retroactively for 5-years for additional states
  - a) Texas, Florida and Illinois
  - b) May pursue additional states depending on timing and R&D resources available to build automatic classifier

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**Castillo v. Glenair, Inc.** CCR

Court of Appeal, Second District, Division 2, California. · April 16, 2018 · 23 Cal.App.5th 262 · 232 Cal.Rptr.3d 844 · 2018 Wage & Hour C...

Document Filings (6) Negative Treatment (0) History (2) Citing References (17) Table of Authorities Powered by KeyCite

**Synopsis**

- West Headnotes
- Attorneys and Law Firms
- + Opinion
- All Citations
- Footnotes

**Holdings:** The Court of Appeal, Lui, P.J., held that:

- 1 Court of Appeal had jurisdiction to consider workers' premature appeal;
- 2 agency and client-company were in privity for purposes of wage and hour actions, and thus settlement in prior action was res judicata against workers;
- 3 client-company was agent of agency with respect to payment of workers, and thus was released party under settlement agreement in prior wage and hour action against agency;
- 4 trial court acted within its discretion in considering evidence of agency not contained in client-company's separate statement of material undisputed facts;
- 5 workers had sufficient opportunity, in accordance with due process, to address issue of special agency prior to entry of summary judgment;
- 6 allegation in complaint regarding legal relationships between client-company and "Doe defendants" did not constitute judicial admission of agency; and
- 7 public interest considerations supported application of res judicata.

Affirmed.

**Procedural Posture(s):** On Appeal; Motion for Summary Judgment; Motion to Amend the Complaint.

**West Headnotes (23)**

<b>1</b>	<b>Appeal and Error</b>	30 30VII	Appeal and Error Transfer of Cause
----------	-------------------------	-------------	---------------------------------------

[Back to top](#)

## Material/Key Facts Filter and Field

1. Continue editorial efforts to tag material/key facts within published cases
2. Refine and implement normalization, stemming and other aggregation processes
3. Build Westlaw Edge facet to allow filtering of search results by user selected facts
4. Add new T&C field to allow Boolean searching of tagged facts, and include field in Advanced Search Templates
5. Implement snippets and search term highlighting of all instances of fact within each case
6. Additional Editorial staffing to tag facts retroactively for key jurisdictions (no additional Tech work)

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## WestSearch Plus Search Enhancements

1. Finish 2018 Search Query Enhancements (Focus Highlighting and Navigation, Query Terms Heat Map, Thesaurus/Related Concepts)
  - Implement Focus Highlighting for Metadoc Doc Summary (grey box) in Search Results after Novus change in April
2. Search Term Emphasis (Leverage Novus Concept Weighting to allow user to designate key terms in query)
3. Improvements to WestSearch Grading Tool to support Fermi re-training
4. Implement retrained Fermi model weights using original Fermi Training Data
5. Retrain Fermi models with new training data derived from user logs
6. Implement Novus based improvements (e.g. Global IDF (Inverse Doc Freq) tables)
7. Add Headnote search results to WestSearch by leveraging Dynamic QA system
8. Search Within (add plain language support and multi-level capabilities)
9. New search algorithms using updated AI capabilities and more expanded eventing data
10. Dedicated search environment for grading tool (LTIO)

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## Claims Explorer (Issue Finder)

1. Work with R&D to invent a new AI-based model to associate facts with a set of potential claims, likely defenses to those claims, and potentially available remedies for those claims
  - a) Derive relationships between these entities automatically from pleadings and other trial documents
  - b) Validate and enhance relationships and entities editorially
2. Build new UI to allow customers to input facts and/or claims and explore related claims and defenses
3. Associate additional legal authorities and analytical guidance for the claims and defenses

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## Clustering & Micro-clusters (Legal Authority)

1. Re-evaluate existing Westlaw Clustering algorithms, labelling and UI for quality and customer value (accessed as Related Content on documents today)
2. Work with R&D to invent new Micro-Clusters containing all of the most important content on Westlaw for narrowly defined legal issues (leverage AI technologies, usage data, editorial enhancements, and data relationships)
3. Invent or create new labels and relationships for these Micro-Clusters to present a new kind of legal authority feature that will allow customers to search and browse related Micro-clusters based on whichever attributes are known to the customer (facts, causes of action, defenses, desired remedy, practice area, statute, regulation, etc.)

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## Smaller Improvements to Westlaw Edge

1. Additional UI Improvements (e.g. more consistency and updating of toolbars and filters beyond initial search and related information tabs work)
2. Additional Editorial Tooling to continue cleaning up QA
3. Additional Editorial Tooling for TRD/Search Suggestions
4. Additional Editorial Tooling for other Type-Ahead content
5. Performance improvements for Type-Ahead for WestSearch Plus
6. Accessibility updates for Westlaw Edge
7. Support more Westlaw Edge features on iOS Apps (e.g. Some Litigation Analytics)
8. Additional Westlaw Edge branding (e.g. email for delivery, alerts & history)
9. Custom Pages Organization
10. Factors Courts Consider Enhancements (UI Improvements and Additional Content)
11. Default Show KeyCite Flags beyond Cases
12. Statutes Compare Formatting Toggle
13. KeyCite Alerts on Items in Folder

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**WESTLAW EDGE: Release Targets**

2019				2020+
ASM (Q1)	AALL (Q3)	EOY/ASM 2020	Future	
<ul style="list-style-type: none"> <li>Search: Focus Highlighting</li> <li>Search: Thesaurus &amp; Related Concepts</li> <li>Search: Relevancy Improvements</li> <li>TOC: Search Term Heatmap</li> <li>Search: Procedural Posture Filter</li> <li><b>Doc Analyzer: New Cases Recommendations (Strategic) &amp; Improved UI</b></li> <li><b>KeyCite Overruling Risk: Highlighting Impacted Paragraphs</b></li> <li>WestSearch+: Dynamic QA</li> <li>Dynamic Surveys</li> </ul>	<ul style="list-style-type: none"> <li>WestSearch+: Additional Content QA Pairs</li> <li>WestSearch+: Integrated Editorial Tools for QA data for WL &amp; Edge</li> <li>Compare Versions for State Regs</li> <li>KeyCite Overruling Risk: More Relationships</li> <li>Search: Semiautomatic Fermi Retraining based on User Logs</li> <li>Search: Headnote Content Type in Global Search</li> </ul>	<ul style="list-style-type: none"> <li>Search: Material/Key Fact Filter &amp; Field</li> <li>Search: R&amp;D Classifier for Procedural Posture Filter</li> <li>Claims Explorer</li> <li>Doc Analyzer: Algorithm and UI Use Case</li> <li>WestSearch+: Additional Content QA Pairs</li> <li>KeyCite Overruling Risk: More Relationships</li> <li>WestSearch+: Editorially Driven QA Quality Improvements</li> <li>Claims Explorer</li> <li>Updated Clustering/Micro-clusters</li> </ul>	<ul style="list-style-type: none"> <li>Search: Replace Fermi Report Builders</li> </ul>	
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# EXHIBIT 45

# WestSearch Plus: A Non-factoid Question-Answering System for the Legal Domain

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## ABSTRACT

We present a non-factoid QA system that provides legally accurate, jurisdictionally relevant, and conversationally responsive answers to user-entered questions in the legal domain. This commercially available system is entirely based on NLP and IR, and does not rely on a structured knowledge base. WestSearch Plus aims to provide concise one sentence answers for basic questions about the law. It is not restricted in scope to particular topics or jurisdictions. The corpus of potential answers contains approximately 22M documents classified to over 120K legal topics.

## CCS CONCEPTS

• **Information systems** → **Question answering; Expert search; Query log analysis; Query reformulation;** • **Computing methodologies** → **Natural language processing; Artificial intelligence; Discourse, dialogue and pragmatics.**

## KEYWORDS

question answering; legal question answering

### ACM Reference Format:

Gayle McElvain and George Sanchez, Sean Matthews, Don Teo, Filippo Pompili, Tonya Custis. 2019. WestSearch Plus: A Non-factoid Question-Answering System for the Legal Domain. In *Proceedings of the 42nd International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '19), July 21–25, 2019, Paris, France*. ACM, New York, NY, USA, 4 pages. <https://doi.org/10.1145/3331184.3331397>

## 1 INTRODUCTION

Question Answering (QA) in the Legal domain requires a system that is precise and legally accurate, while also providing adequate recall across different jurisdictions (governing law may vary between jurisdictions). Such a system needs to be robust to the different information needs that arise across different legal specialties and practice areas, as well as to differences in language use between individual attorneys and the statutes of a particular jurisdiction.

\*Work was done while employed at Thomson Reuters.

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*SIGIR '19, July 21–25, 2019, Paris, France*

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 ACM ISBN 978-1-4503-6172-9/19/07...\$15.00  
<https://doi.org/10.1145/3331184.3331397>

Attorneys are continually trying to optimize their research time, trying to provide value for their clients in terms of doing the most and best research possible in the allowed number of billable hours. As such, it is important for attorneys to find the most relevant information for their clients' matters in the quickest manner possible. We present WestSearch Plus, a Question Answering system for legal questions that allows attorneys to quickly find the most salient points of law, related case law, and statutory law appropriate to their jurisdiction.

Our system aims to provide conversationally fluent, concise one sentence answers for basic questions about the law. It is not restricted in scope to particular topics or jurisdictions. Consider also that scoring based on linguistic analysis is computationally expensive relative to the scoring methods used for search and that the entire system must be performant enough to run dynamically from a global search box. Taken together, these factors make search a critical component in the system, functioning as the primary means by which to narrow the universe of potential answers for scoring. Additionally, our system relies on NLP models targeted at the tokens, syntax, semantics, and discourse structure of legal language, in addition to other machine-learned models to classify question and answer intents, identify named entities and legal concepts, and for classifying, ranking, and thresholding the final answer candidates.

The answers provided are taken from a corpus of approximately 22 million editorially-written, one-sentence summaries of US case law classified to over 120K legal topics. These one-sentence summaries of case law (Headnotes) are editorially added to cases as part of the content publishing process. Attorney-editors have been adding Headnotes to cases in this manner to Thomson Reuters content for over 100 years.

## 2 TRAINING DATA & ANNOTATION TASK

As is typical, our QA system was trained on a large corpus of question-answer pairs. In total, we trained the production system on approximately 200K QA pairs, with an average of 3 correct vs. incorrect judgements for each supplied by attorney-editors.

Our initial set of questions was mined from Westlaw (a legal search engine) query logs. Initial QA pairs were constructed by attorney experts in their attempts to find answers to those questions by using Westlaw. Our answer corpus consists of about 22 million human-written, one-sentence summaries of US court case documents, spanning over 100 years of case law. As such, no passage retrieval, algorithmic summarization, nor NLG derived from the longer case documents is necessary to render the answers.

SIGIR '19, July 21–25, 2019, Paris, France Gayle McElvain and George Sanchez, Sean Matthews, Don Teo, Filippo Pompili, Tonya Custis

QA Pairs were given four labels (**A**, **C**, **D**, or **F**) by attorney-editors. Both **A** and **C** labels are factually correct answers, but **A** answers are ideal and more pragmatically correct (sound like a natural answer to the question and give all and only the necessary amount of information). **D** and **F** answers are incorrect, but with **Ds** being less egregiously wrong than **Fs**.

### 3 LOGICAL SYSTEM ARCHITECTURE

Logically, the QA system has four main components: Question Analysis, Query Generation & Federated Search, Answer Analysis, and Question-Answer Pair Scoring.

#### 3.1 Question Analysis

The first step in processing a question is to infer its basic linguistic structure. This involves machine learning algorithms trained to predict parts of speech, NP and VP chunks, syntactic dependency relations, and semantic roles. The QA system employs open source models,<sup>1</sup><sup>2</sup> trained on annotated sentences from varied domains [3].

To detect named entities and legal concepts in both questions and answers, we use a combination of gazetteer lookup taggers and statistical taggers trained with Conditional Random Fields.<sup>3</sup>

We classify a question's semantic intent to a set of predetermined semantic frames. A semantic frame is a coherent structure of related concepts, where the relationships between concepts tend to be realized according to prototypical patterns. This notion of frame is borrowed from Frame Semantics [4] and related notions in theories of Construction Grammar [5]. The process for identifying semantic frames was informed by editorial guidelines used to author the one-sentence summaries comprising the answer corpus. The frame of a question and its ideal answer should always be one in the same.

At runtime, questions are classified to a particular frame (or as "out-of-frame"). A Neural Network question classifier is trained on labeled (question, frame) pairs for each frame [1].

#### 3.2 Query Generation & Federated Search

Search is a critical component in our QA system, functioning as the primary means by which to narrow the universe of potential answers for scoring. Linguistic analysis and feature generation for all questions against 22M potential answers is computationally expensive relative to the scoring methods used for search.

While no search strategy can precisely identify all possible answers to a question, the likelihood of retrieving a correct answer is increased by running multiple searches against different search engines. We execute three types of queries for each question against different search indices in two different search engines: 1) Natural language searches, derived from the question text; 2) Structured semantic searches, derived from the text, entities, and semantic frame information of the question; 3) More-like-this relevance feedback searches, derived from highly-ranked candidate answers.

A default natural language search strategy is applied to all incoming questions. This type of search is run against answer indices created in both a proprietary search engine and Elasticsearch. We

chose these two search engines because they provide very different results. The proprietary engine has been fine tuned over several years with many features that enhance legal search in particular. Elasticsearch is open source, and does not have any such fine-tuning. Together, these two search engines give us an overall better candidate pool of answers in terms of recall.

The question answering system leverages semantic search strategies for questions belonging to known frames. This is one way the system uses frame classification on both questions and answers. The questions must be classified at runtime, but candidate answers can be classified offline and stored in a separate index. This enables search to target the particular subset of answers evoking the same semantic frame as the question. Depending on the frame of the question, multiple queries may be generated in order to target specific frame elements. This is accomplished with frame-specific template queries that have placeholders for specific frame elements. Recognized entities and legal concepts in the question replace placeholders in frame-specific template queries to produce fully formed queries for execution against a search engine.

Finally, More-like-this search is a relevance feedback strategy used to widen the pool of potential answers after an initial set of candidates have been scored. The main contribution of this strategy is to expand coverage for specific legal jurisdictions. It involves searching for answers that closely match high scoring answers from outside the user's jurisdiction.

Document vectors constructed over the answer corpus are used to measure the semantic similarity between top-ranked answer candidates and more-like-this answer candidates. The approach used to generate document embeddings is based on the Paragraph Vectors model, also known as doc2vec, proposed by [7]. Models were trained on the answer corpus using an implementation provided by [6].

#### 3.3 Answer Analysis

Search produces a pool of candidate answers for deeper analysis. The answer analysis stage mirrors the linguistic analyses produced for questions as detailed above. Unlike with questions, however, all answer analyses can be precomputed and stored to optimize performance.

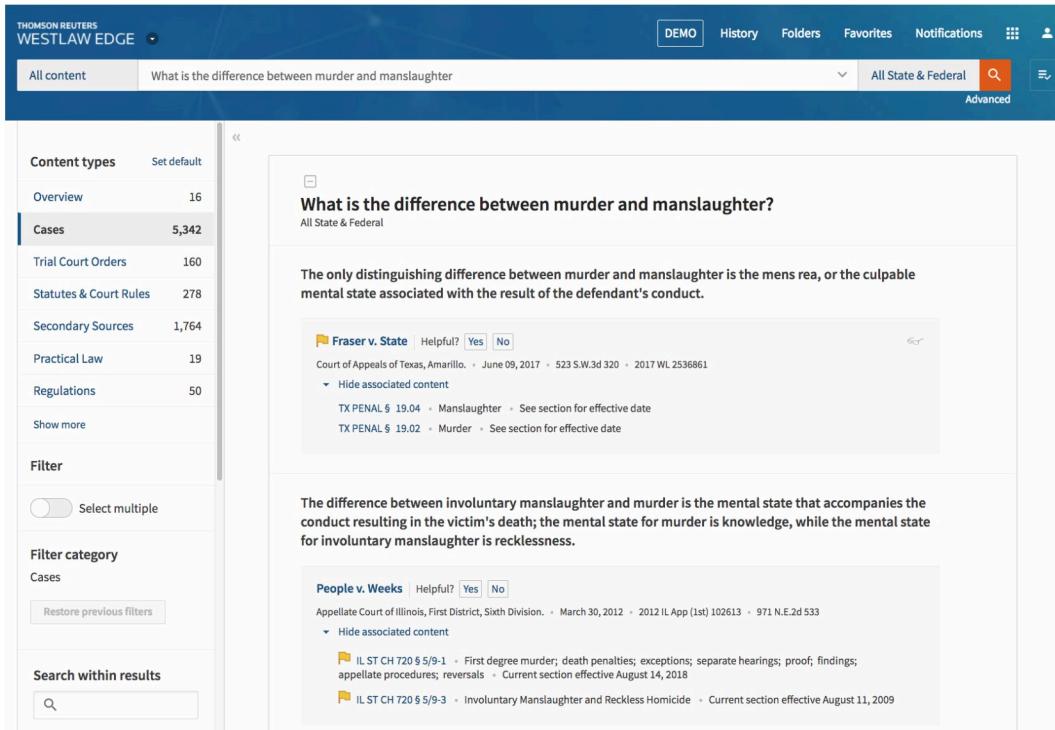
Although the basic procedure and outcome of applying entity recognition and semantic frame classifications to answers is the same as for questions, different models for both must be trained on the answers due to their more complex syntactic structure. Because answers are harder to read than questions, the creation of adequate training data for the answer frame classifiers is more time consuming: individual (answer, frame) labels take much longer for attorney-editors to produce, and due to greater linguistic variation between answers than questions, more labels are also required to train a reliable model.

To reduce the amount of training data required, a two-step procedure leveraging search-based classification was used. In the first stage, queries were written by attorney-editors to identify a high-recall subset of the corpus containing answers associated with each frame. Then one maximum entropy classifier per frame is trained on the corresponding search results. Manual judgments indicating whether or not each document matching the query is actually an

<sup>1</sup><https://opennlp.apache.org/>

<sup>2</sup><https://emorynlp.github.io/nlp4j/>

<sup>3</sup><http://www.chokkan.org/software/crfsuite>



**Figure 1: QA System screenshot, displaying two candidate answers in the 'teaser' view on top of WestSearch results.**

instance of the frame are then used as training data for the classifiers. This requires less training data overall, because each subset of the data has less variation, and the task domain is narrower.

### 3.4 Question-Answer Pair Scoring

Feature scoring functions for the syntactic analyses of a question-answer pair primarily measure overlap and alignment between the question and the answer sentence. Different features compute the alignment between noun phrases, dependency relations, and verb phrases. Various word embedding models trained on both open domain corpora and legal corpora are employed to measure semantic similarity within these structures.

Positional features capture the intuition that concepts in the question are likely to occur more closely together in correct answers than in incorrect answers. Distance is measured over the syntactic parse tree as well as over token and character offsets.

Answers that read like a natural answer to the question will typically put concepts from the question in English "topic" position near the beginning of the sentence. Highly-rated answers have a strong tendency to exhibit this pattern. Correct answers will also often have question concepts near the root of the answer's syntactic parse tree. Both these tendencies are captured with the topicality features.

All questions and answers are classified to a legal taxonomy with over 120K fine-grained categories. All answers have manually assigned key numbers assigning the point of law to one or more

categories. The classification scheme is quite complex, so user questions are generally underspecified relative to the taxonomy. As such, when there are multiple answer candidates with the correct answer to a question, we do not expect that they all belong to the same category. In the same search result, however, there is a tendency for correct answers to have fewer distinct category classifications among them than incorrect answers. This indicates some association between question intent and taxonomic classification, which is leveraged by the system.

In particular, both question and answer candidate are classified to the legal taxonomy and feature scoring functions compare the similarity of those outputs. In addition, the predicted classifications for a question are also compared to the manually assigned categories for each answer.

All of the above features are combined in an ensemble model of weak learners [2]. This supervised model learns by example from labeled question answer pairs. At runtime, each QA pair is considered independently by the model and ranked by a score that represents the probability of that candidate being a correct answer for that question.

The last stage of the system determines whether or not to show an answer based on its probability score. Determining probability score thresholds is a business decision that weighs the relative cost of showing some incorrect answers against the cost of showing customers fewer answers (i.e., answering fewer customer questions).

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The screenshot shows the Westlaw Edge interface with a search bar at the top containing the query "Is a landlord liable for injuries caused by a tenant's dog?". Below the search bar, there are tabs for "All content" and "Enter terms, citations, databases, questions, anything...". The main search results area displays several legal cases and statutes:

- Coburn v. Dixon**: Helpful? Yes No. Court of Appeal of Louisiana, Third Circuit. - April 27, 2016 - 190 So.3d 816 - 2016 WL 1660487. Options: Hide associated content.
- Diaz v. Henderson**: Helpful? Yes No. Court of Appeals of Ohio, Twelfth District, Butler County. - April 30, 2012 - Not Reported in N.E.2d - 2012 WL 1494526. Options: Hide associated content.
- Braithwaite v. Presidential Property Services, Inc.**: Helpful? Yes No. Supreme Court, Appellate Division, Second Department, New York. - December 12, 2005 - 24 A.D.3d 487 - 806 N.Y.S.2d 681.

Below the search results, there is a note: "Landlord was not responsible for injuries that neighbor sustained when she was bitten by tenant's dog; there was no indication to support a finding that landlord had knowledge of any dogs on the property leased by tenant, or that he knew of the animal's dangerous propensities, and mere presence of dog belonging to tenant did not constitute vices and defects of the leased premises so as to make landlord liable to neighbor for injuries caused by the tenant's dog."

Figure 2: QA System screenshot, displaying the 'Show more' answers page

Thresholds were set using 10-fold cross validation on all graded data. Thresholds were chosen by the business to: 1) maximize *Answered at*<sup>4</sup> metrics for correct answers (90% *Answered at* 3), 2) minimize *Answered at* metrics for F answers (1.5% *Answered at* 3), while 3) also balancing the system's coverage (the number of user questions for which answers are shown).

#### 4 DEMO

Our QA system for the legal domain takes a question as input in the global search box. If high-confidence answers are returned by the QA system for the user's question in the user's jurisdiction, they are shown above the search results returned by Westlaw's main search algorithm for that question run as a natural language query.

The user's question and the answers are clearly displayed. For additional context (as a one-sentence summary is often not enough for an attorney to base a case or argument on), options are given to the user to click through to exactly the part of the case from which the answer comes and to any relevant statutes (laws) for additional context. In addition, the user can click on 'Show more' to see more answers (and related content) to their question.

The ability to quickly find answers and to link directly to relevant, more in-depth content from those answers provides attorneys a quick and comprehensive entry point into doing their research that other legal research platforms lack.

Since its launch in July 2018, 40% of Westlaw users have triggered the WestSearch Plus feature. When answers are presented to the

user, there is a 52% clickthrough rate to see the full case, statute, or more answers related to their question.

#### 5 CONCLUSION

We have presented a commercially-released non-factoid QA system that relies extensively on IR and NLP. QA in the Legal domain requires a system that is precise, while also providing adequate recall across different jurisdictions. Our system is robust to the different information needs and different language usage that arise across different legal practice areas and jurisdictions.

#### REFERENCES

- [1] Piotr Bojanowski Armand Joulin, Edouard Grave and Tomas Mikolov. 2017. Bag of tricks for efficient text classification. In *Proceedings of the 15th Conference of the European Chapter of the Association for Computational Linguistics*. EACL, 427–431.
- [2] Tianqi Chen and Carlos Guestrin. 2016. Xgboost: A scalable tree boosting system. In *Proceedings of the 22nd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*. KDD, 785–794.
- [3] Jinho D. Choi. 2016. Dynamic Feature Induction: The Last Gist to the State-of-the-Art. In *Proceedings of the 54th Annual Meeting of the Association for Computational Linguistics*. ACL, 271–281.
- [4] Charles J. Fillmore. 2006. Frame semantics. Cognitive linguistics: Basic readings. In *Cognitive linguistics: Basic readings*, Dirk Geeraerts (Ed.). Walter de Gruyter, Berlin, 34, 373–400.
- [5] Adele E. Goldberg. 2006. In *Constructions at work: The nature of generalization in language*. Oxford University Press.
- [6] Jey Han Lau and Timothy Baldwin. 2016. An Empirical Evaluation of doc2vec with Practical Insights into Document Embedding Generation. In *Proceedings of the 1st Workshop on Representation Learning for NLP*. 78–86.
- [7] Quoc Le and Tomas Mikolov. 2014. Distributed representations of sentences and documents. In *Proceedings of the 31st International Conference on Machine Learning*. ICML, 1188–1196.

<sup>4</sup>Answered at is defined for each question's answer set such that it is the percentage of questions for which there is at least one of a particular label returned by the system at or above the rank indicated (so, at rank 1, *Answered at* 1 for As is equivalent to Precision at 1).

# EXHIBIT 46

1 HIGHLY CONFIDENTIAL - AL-KOFAHI

2 IN THE UNITED STATES DISTRICT COURT

3 FOR THE DISTRICT OF DELAWARE

4 -----  
5 THOMSON REUTERS ENTERPRISE  
CENTRE GMBH AND WEST C.A. No.  
6 PUBLISHING CORPORATION,

7 Plaintiffs/Counterdefendants,

8 vs.

9 ROSS INTELLIGENCE INC.,

10 Defendants/Counterclaimant.

11 -----  
12  
13 HIGHLY CONFIDENTIAL

14 VIDEOTAPED DEPOSITION OF KHALID AL-KOFAHI

15 FRIDAY, APRIL 8, 2022

16 REGUS

17 90 CANAL STREET, 4TH FLOOR

18 BOSTON, MA 02114

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23  
24 Reported by: Teri C. Gibson, CSR, RPR, CCR

25 Job #: 208933

1 HIGHLY CONFIDENTIAL - AL-KOFAHI

2  
3 Deposition of KHALID AL-KOFAHI, held  
4 at REGUS, 90 Canal Street, 4TH Floor, Boston, MA,  
5 pursuant to Notice, before Teri C. Gibson, a  
6 Shorthand Reporter, Registered Professional  
7 Reporter, and Notary Public in and for the  
8 Commonwealth of Massachusetts.

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1 HIGHLY CONFIDENTIAL - AL-KOFAHI

2 A P P E A R A N C E S

3 KIRKLAND & ELLIS

4 ATTORNEYS FOR PLAINTIFFS/COUNTERDEFENDANTS

5 BY: ERIC LOVERRO, ESQ.

6 MIRANDA MEANS, ESQ.

7 601 Lexington Avenue

8 New York, New York 10022

9  
10 CROWELL & MORING

11 ATTORNEYS FOR DEFENDANTS/COUNTERCLAIMANT

12 BY: GABRIEL RAMSEY, ESQ.

13 3 Embarcadero Center

14 San Francisco, California 94111

15  
16 ALSO PRESENT:

17 Adam Cerro, Videographer

18  
19

20  
21

22  
23

24  
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1 HIGHLY CONFIDENTIAL - AL-KOFAHI

2 I N D E X

3 WITNESS PAGE

4 By Mr. Ramsey 7

5

6 E X H I B I T S

7 NUMBER DESCRIPTION PAGE

8 Exhibit 1 LinkedIn Profile of 9  
9 Khalid Al-Kofahi

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2 P R O C E E D I N G S

3 VIDEOGRAPHER: One moment, please.

4 Good morning. We are on the record.

5 This is videographer Adam Cerro with  
6 TSG Reporting. Today's date is April 8, 2022,  
7 and the time is 9:41 a.m.

8 We are here in 90 Canal Street, Fourth  
9 Floor, Boston, Massachusetts, to take the video  
10 deposition of Khalid Al-Kofahi in the matter of  
11 Thomson Reuters Enterprise Centre GMBH, et al. v.  
12 Ross Intelligence, Inc.

13 Would counsel please introduce  
14 themselves for the record.

15 MR. RAMSEY: This is Gabriel Ramsey of  
16 Crowell & Moring for the defendant, Ross  
17 Intelligence, and also joined by my colleague,  
18 Kevin Cacabelos.

19 MR. LOVERRO: This is Eric Loverro from  
20 Kirkland & Ellis on behalf of plaintiffs, Thomson  
21 Reuters Enterprise Centre and West Publishing  
22 Corporation, and with me is my colleague, Miranda  
23 Means.

24 THE VIDEOGRAPHER: Thank you.

25 Would the court reporter, Teri Gibson,

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2 please swear in the witness.

3 (Witness sworn.)

4 THE WITNESS: Yes.

5 THE COURT REPORTER: Counsel, you may  
6 begin.

7 KHALID AHMAD AL-KOFAHI

8 EXAMINATION

9 BY MR. RAMSEY:

10 Q. All right. Good morning, Mr. Al-Kofahi.

11 So have you ever had your deposition taken  
12 before?

13 A. No. My first time.

14 Q. Okay. So it's questions and answers. I  
15 will ask you questions, appreciate you giving, if you  
16 can, full and capable answers; can we agree on that?

17 A. Yes. I'm sorry. Just speak a little bit  
18 louder.

19 Q. Oh, sure.

20 A. Yeah, yeah. I'm losing my hearing here at  
21 the same time.

22 Q. No, no, no. Thank you for telling me.

23 So the most important thing is that we try  
24 not to talk over each other; that's always the  
25 challenge. So let me finish my questions before you

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2 Confidential." We'll designate it pursuant to  
3 the protective order.

4 Thanks.

5 THE WITNESS: I mentioned three ways.

6 BY MR. RAMSEY:

7 Q. Yes.

8 A. Text search against headnotes, semantic  
9 search against headnotes, embeddings against  
10 headnotes; that's three ways.

11 There is one key dimension that is also  
12 critical. Headnotes are the set of answers to the  
13 questions for Westlaw Edge, for case law. When  
14 someone searches for some legal question, headnotes  
15 are the set of potential answers.

16 Q. Not the underlining cases?

17 A. The headnotes are the case. You will see  
18 the headnote. It has entered the case. You can use  
19 that for context.

20 Q. I guess I don't understand. So if I'm  
21 searching, "What is the statute of limitations for a  
22 claim of breach of contract," and I want to find cases  
23 that answer that question, why are headnotes the  
24 answer?

25 MR. LOVERRO: Objection, form, vague,

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2 C E R T I F I C A T E

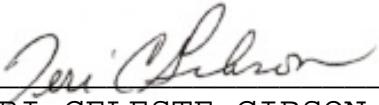
3 COMMONWEALTH OF MASSACHUSETTS

4 SUFFOLK, SS.

5 I, TERI CELESTE GIBSON, a CSR, RPR, CRR, and a  
6 Notary Public within and for the Commonwealth of  
7 Massachusetts do hereby certify:

8 In the 8th day of April, 2022, before me, the  
9 undersigned Notary Public, personally appeared KHALID  
10 AHMAD AL-KOFAHI, who proved to me through satisfactory  
11 evidence of identification, which was a MASSACHUSETTS  
12 DRIVER'S LICENSE; that the witness whose testimony is  
13 hereinbefore set forth, was duly sworn by me, and that  
14 such testimony is a true and accurate record of my  
15 stenotype notes taken in the foregoing matter, with use of  
16 mechanical stenography, computer aided transcription, to  
17 the best of my knowledge, skill and ability.

18 IN WITNESS WHEREOF, I have hereunto set my hand  
19 this 21st day of April, 2022.

20   
21 TERI CELESTE GIBSON, CSR, RPR, CRR

22 Notary Public - My Commission Expires: 2/7/2025

23

24

25

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

THOMSON REUTERS ENTERPRISE CENTRE  
GMBH and WEST PUBLISHING  
CORPORATION,

C.A. No. 20-613-LPS

Plaintiffs, Counterdefendants,

v.

ROSS INTELLIGENCE INC.,

Defendant, Counterclaimant.

**PLAINTIFFS THOMSON REUTERS ENTERPRISE CENTER GMBH  
AND WEST PUBLISHING CORPORATION'S NOTICE OF ERRATA  
FOR THE DEPOSITION OF KHALID AL-KOFAHI**

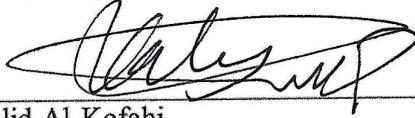
I, the undersigned, do hereby declare that I read the deposition transcript of Khalid Al-Kofahi dated April 8, 2022 and that to the best of my knowledge, said testimony is true and accurate, with the exception of the following changes listed below:

<b>Page</b>	<b>Line</b>	<b>Original Text</b>	<b>Replacement Text</b>	<b>Reason</b>
7	23	“was the first hire in the Thomson’s”	“was the first hire in Thomson’s R&D”	Transcription Error
7	23	“do national language processing”	“do natural language processing”	Transcription Error
8	20-21	“on developing code or programs that learns”	“on developing code or programs that learn”	Transcription Error
8	23	“some of these programs on region”	“some of these programs on vision”	Transcription Error
9	6	“so you can apply to”	“so you can apply it to”	Transcription Error
9	7	“recognizing the words”	“recognizing the world”	Transcription Error
9	11	“pixel language”	“text or language”	Transcription Error
12	18	“data that feds it”	“data that feeds it”	Transcription Error
12	20	“they just say”	“the judge say”	Transcription Error
13	8	“teaming”	“teams”	Transcription Error

Page	Line	Original Text	Replacement Text	Reason
14	2	“considered horizontal search engine.”	“considered a horizontal search engine.”	Transcription Error
14	10	“internal”	“in general”	Transcription Error
14	13	“medical document”	“medical documents”	Transcription Error
15	10	“caseload”	“case law”	Transcription Error
16	7	“2000”	“2008”	Misspoke
17	16	“a means”	“a main”	Transcription Error
20	11	“have many other features”	“has many other features”	Transcription Error
25	17	“voiding”	“voting”	Transcription Error
27	6	“that by itself limited”	“that by itself limits”	Transcription Error
34	4	“invention”	“the invention”	Transcription Error
35	25	“headnotes talks”	“headnotes talk”	Transcription Error
39	20	“language and another set”	“language in another set”	Transcription Error
49	7	“leading to rank”	“learning to rank”	Transcription Error
49	13	“hundred acuties”	“hundred queries”	Transcription Error
49	17	“opposition problem”	“optimization problem”	Transcription Error
54	13	“learning track”	“learning to rank”	Transcription Error
54	23	“Objective”	“The objective”	Transcription Error
57	23	“corridor, you know”	“code”	Misspoke/Transcription Error
65	5	“there is algorithms”	“there are algorithms”	Transcription Error
69	19	“that are started a lot”	“that are cited a lot”	Transcription Error
77	15	“used to formalize”	“used to normalize”	Transcription Error
78	24	“whether it’s six”	“whether it is text”	Transcription Error
83	5	“computer version”	“computer vision”	Transcription Error
83	20	“and et cetera”	“et cetera”	Transcription Error
83	20-21	“high dimension and a space”	“high dimensionality space”	Transcription Error
86	8	“This note is good”	“This headnote is good”	Transcription Error
91	21	“The average document”	“The inverse document”	Transcription Error
92	25	“higher rate”	“higher weight”	Transcription Error
93	4	“given more rate”	“given more weight”	Transcription Error
93	24	“set of number”	“set of numbers”	Transcription Error
94	8	“we meet at the cosine”	“we measure the cosine”	Transcription Error
100	7-8	“hundreds of thousands or over 3 millions”	“hundreds of thousands or millions”	Transcription Error

Page	Line	Original Text	Replacement Text	Reason
103	16-17	“Semantic parsing try to extract”	“Semantic parsing tries to extract”	Transcription Error
104	5-6	“is there some parsing called density parsing”	“there is some parsing called density parsing”	Transcription Error
104	8	“the tries -- it's a tree”	“the trees -- it's a tree”	Transcription Error
106	10-11	“engram, engrams? Engrams?”	“N-grams?”	Transcription Error
106	17	“Engrams is a sequence of end tokens”	“N-gram is a sequence of N tokens”	Transcription Error
106	19	“End tokens?”	“N tokens?”	Transcription Error
110	4	“the Spell Checker use”	“the Spell Checker uses”	Transcription Error
110	5	“A correcter”	“A character”	Transcription Error
113	11	“classify to the topics”	“classify the topics”	Transcription Error
114	14	“to an identical article”	“to an analytical article”	Transcription Error
114	21-22	“caseload document”	“case law document”	Transcription Error
117	5	“You still can use, available,”	“You still can use it, it's available,”	Transcription Error
118	9	“acuity”	“query”	Transcription Error
118	24-25	“It don't satisfy the logic”	“It doesn't satisfy the logic.”	Transcription Error
122	13	“has additional damages”	“has additional dimensions”	Transcription Error
124	20	“computer search engine”	“competitor search engine”	Transcription Error
125	17	“be someone dialing query”	“be someone firing a query”	Transcription Error
127	16	“critic”	“credit”	Transcription Error
131	5	“I used diagrams,”	“I used bigrams”	Transcription Error
131	6	“diagrams. I call them word pairs. Diagrams”	“bigrams. I call them word pairs. Bigrams”	Transcription Error
133	20	“Relations and unstructured”	“relations in unstructured”	Transcription Error

Dated: May 31, 2022



Khalid Al-Kofahi